

Radio

# AMATEUR

Call Book Magazine

**\$4<sup>50</sup>**

Foreign  
**\$4<sup>75</sup>**



**FALL 1957**



# performance...

## the basis for a great reputation!

From the first Collins Amateur equipment to the present SSB station, Collins performance has been the standard for comparison. See your Collins distributor. You can own the finest for a few pennies a day.



### KWS-1

**POWER AMPLIFIER INPUT** — 1 kw peak envelope power SSB, 1 kw CW operation.

**R-F OUTPUT IMPEDANCE** — 52 ohms.

**FREQUENCY BANDS** — 80, 40, 20, 15, 11, 10 meters.

**EMISSION** — SSB, AM carrier plus one sideband, CW.

**HARMONIC AND SPURIOUS RADIATION** — (Other than 3rd order distortion products.) Intra-channel radiation is at least 50 db down. All spurious radiation at least 40 db down at output of exciter. Second harmonic at least 40 db down; all other harmonics at least 60 db down.

**DISTORTION** — SSB, 3rd order products 35 db down or better at 1 kw PEP.

**FREQUENCY STABILITY** — After 15 minutes warmup, within 300 cps of starting frequency. Dial accuracy: 350 cps after calibration.

**AUDIO CHARACTERISTICS** — Response  $\pm 3$  db, 200 to 3,000 cps. Noise and hum: 40 db or more below reference output level. Input: .01 volts for rated power output.

**MICROPHONE INPUT** — Will match high impedance dynamic or crystal.

**WEIGHT** — 210 pounds. Both units.

**SIZE** — KWS-1 — 10-15/32" high, Power Supply 30" high, 17 3/8" wide, 15 1/2" deep.

**RELAY RACK MOUNTING** — Mounting brackets kits available for RF Unit and power supply.

Net Price.....\$2,095.00



### 75A-4

**FREQUENCY BANDS** — 160, 80, 40, 20, 15, 11, 10 meters.

**SIZE** — 10-15/32" high, 17 3/8" wide, 15 1/2" deep.

**WEIGHT** — 35 pounds.

**RELAY RACK MOUNTING** — Mounting brackets kits available.

**NUMBER OF TUBES** — 22, including rectifiers.

**SENSITIVITY** — 1.0 microvolt for 6 db signal-to-noise ratio with 3 kc bandwidth.

**AVC CHARACTERISTICS** — Audio rise less than 3 db for inputs of 5 to 200,000 uv.

**IMAGE AND IF REJECTION** — Image ratio at center of each band 50 db or better. IF rejection at center of each band 70 db or better.

**AUDIO CHARACTERISTICS** — Output — .75 watts with a 3.0 uv signal, 30% modulated. Output impedance — 500 ohms, 4 ohms. Response of audio circuits —  $\pm 3$  db 100 cps to 5,000 cps. Distortion — Less than 10%.

**MUTING** — Provisions for muting the Receiver during key-down operation are provided. A muting voltage of +20 volts must be supplied by transmitter.

**FREQUENCY STABILITY (at 14 mc)** — Temperature — Less than 1200 cycles drift from 0° to 60°C. Warmup drift—Less than 300 cycles after 15 minute operation. Line voltage — Less than 100 cycles for  $\pm 10\%$  change. Dial accuracy — 350 cycles after calibration.

Net Price.....\$695.00



### KWM-1

**RF POWER INPUT** — 175 watts SSB PEP or 160w CW.

**OUTPUT IMPEDANCE** — 50 ohms with not more than 2.5 SWR.

**POWER SOURCE** — 115 vac 50-60 cps, 320w max, 12 vdc, or 28 vdc, 25a max.

**SIZE** — Transceiver — 6 1/4" high, 14" wide, 10" deep. AC Power Supply — 6 1/4" high, 7 3/8" wide, 10" deep. DC Power Supply — 4 1/4" high, 9" wide, 5" deep. Speaker cabinet — 6 1/4" high, 7 3/8" wide, 10" deep.

**WEIGHT** — Transceiver, 15 lbs.; AC Power Supply, 25 lbs.; DC Power Supply, 15 lbs.; Speaker Cabinet, 5 lbs.

**FREQUENCY** — 14-30 mc continuous. Choice of any ten 100 kc bands by crystal switch. Standard complement of crystals — 14.0-14.1 mc CW, 14.2-14.3 mc SSB, 14.9-15.0 mc calibration with WWV, 21.0-21.1 mc CW, 21.3-21.4 mc SSB, 21.4-21.5 mc SSB, 28.0-28.1 mc CW, 28.1-28.2 mc CW, 28.5-28.6 mc SSB, 28.6-28.7 mc SSB.

**FREQUENCY CONTROL** — 70K-1 Permeability Tuned VFO.

**HARMONIC AND SPURIOUS RADIATION** — Carrier suppression —50 db, unwanted sideband —50 db, oscillators and mixer products —50 db, second harmonic —50 db, 3rd order products —30 db.

**FREQUENCY STABILITY** — After 10-minute warmup, within 100 cps. Reset within 1 kc throughout range.

**RECEIVER SENSITIVITY** — 1.0 uv for 6 db S/N ratio with 3 kc bandwidth.

Net Price.....\$770.00

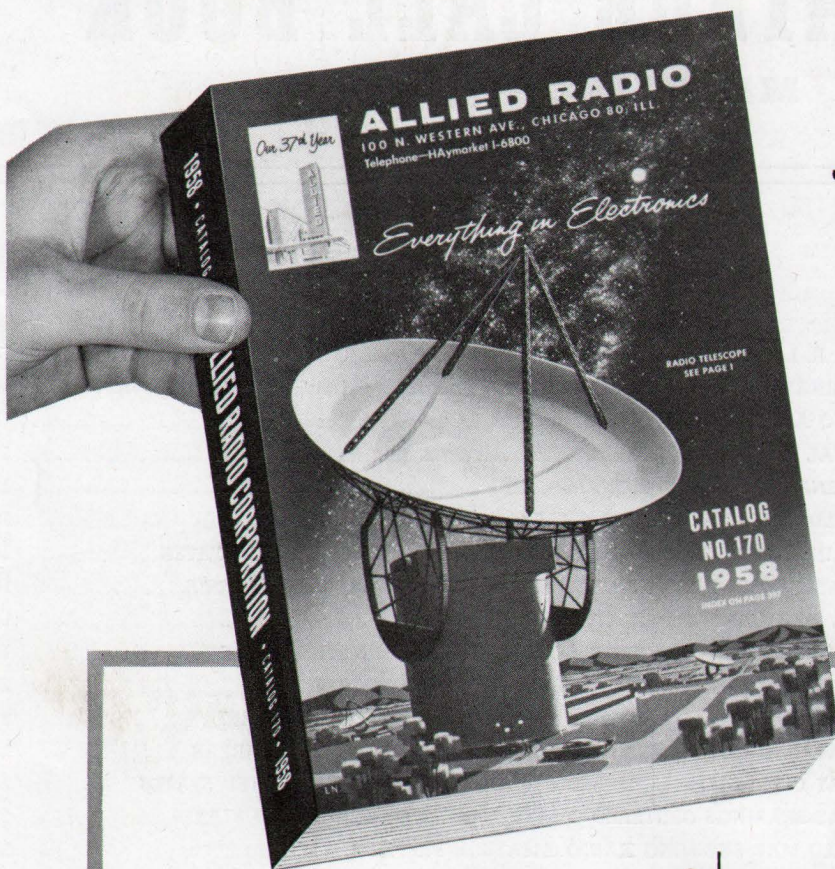
*Collins*

CREATIVE LEADER IN COMMUNICATION





send for the most widely used  
**AMATEUR & INDUSTRIAL ELECTRONIC SUPPLY GUIDE**



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*Serving the Amateur for 37 years*



**ALLIED RADIO**

100 N. Western Ave., Chicago 80, Illinois



# RADIO AMATEUR CALL BOOK

## MAGAZINE

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W9TRD.

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## C O N T E N T S

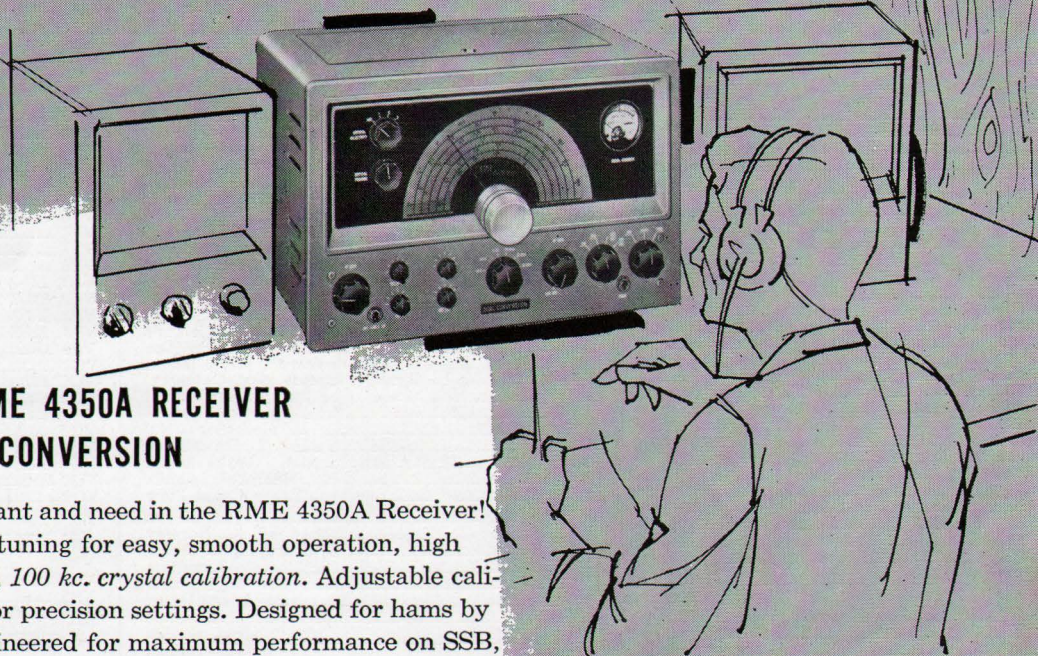
FALL 1957

A. R. R. L. COUNTRIES LIST	4
INTERNATIONAL RADIO AMATEUR PREFIXES arranged alphabetically by prefix	6
RADIO AMATEUR PREFIXES arranged alphabetically by country	8
POSTAL INFORMATION	10
INTERNATIONAL "Q" SIGNALS	12
WORLD TIME CONVERSION CHART	14
AIR-LINE DISTANCES IN MILES BETWEEN CITIES IN THE UNITED STATES	16
GREAT CIRCLE BEARINGS CENTERED ON LOS ANGELES, CALIFORNIA	18
ARRL PHONETIC ALPHABET	19
FEDERAL COMMUNICATIONS COMMISSION EXAMINATION POINTS	19
GREAT CIRCLE BEARINGS CENTERED ON CHICAGO, ILLINOIS	20
GREAT CIRCLE MAP CENTERED ON SAN FRANCISCO, CALIFORNIA	22
GREAT CIRCLE BEARINGS ON WORLD WIDE METROPOLITAN AREAS	23
GREAT CIRCLE MAP CENTERED ON THE CENTER OF THE UNITED STATES	24
GREAT BEARINGS CENTERED ON THE CENTER OF THE UNITED STATES	25
WORLD MAP SHOWING RADIO AMATEUR PREFIXES	26
GREAT CIRCLE BEARINGS IN THE UNITED STATES	28
STANDARD TIME THROUGHOUT THE WORLD	29
GREAT CIRCLE MAP CENTERED ON NEW YORK, N. Y.	30
GREAT CIRCLE BEARINGS CENTERED ON NEW YORK, N. Y.	31
FIRST CALL AREA	1
Includes the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.	
SECOND CALL AREA	33
Includes the States of New Jersey and New York.	
THIRD CALL AREA	89
Includes the States of Delaware, Maryland, Pennsylvania, and the District of Columbia.	
FOURTH CALL AREA	119
Includes the States of Alabama, Florida, Georgia, Kentucky, North and South Carolina, Tennessee, Virginia and the territories of Puerto Rico and the Virgin Islands.	
FIFTH CALL AREA	165
Includes the States of Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.	
SIXTH CALL AREA	206
Includes the State of California, the Territory of Hawaii and those Pacific Possessions not assigned to the seventh call area.	
SEVENTH CALL AREA	263
Includes the States of Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming, the territory of Alaska and adjacent islands.	
EIGHTH CALL AREA	292
Includes the States of Michigan, Ohio, and West Virginia.	
NINTH CALL AREA	328
Includes the States of Illinois, Indiana and Wisconsin.	
TENTH CALL AREA	365
Includes the States of Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota.	
FOREIGN RADIO AMATEUR STATIONS, arranged alphabetically by prefix	403



# COMPARE THEM ALL AND YOU'LL FIND THAT RME HAM EQUIPMENT GIVES YOU MORE

...in quality  
in performance  
in longer-life



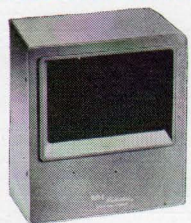
## It's NEW! RME 4350A RECEIVER with DUAL CONVERSION

You get everything you want and need in the RME 4350A Receiver! Dual conversion, 2-speed tuning for easy, smooth operation, high selectivity and rejectivity, *100 kc. crystal calibration*. Adjustable calibration of dials on front for precision settings. Designed for hams by hams, it is laboratory-engineered for maximum performance on SSB, CW and Phone. Ideal for contests, DX, traffic and rag chewing under all receiving conditions. Yet it's yours for just \$249, Amateur Net!



### RME 4301 Sideband Selector

An excellent companion for the RME 4350. Provides easy selection of either sideband on suppressed carrier transmissions or AM phone signals. Adds up to 15 db of sensitivity to the receiver. Can be connected to any communications receiver using 455KC IF or plugs directly into the RME 4350A in jacks provided. \$75.00 Amateur Net



### RME 4302 Speaker

Styled and finished to complement the Model 4350A. Housed in sturdy steel case with cast aluminum front panel. Operates with any receiver having 4 ohm speaker output terminals. \$17.50 Amateur Net

## Electro-Voice® Has the RIGHT Microphone for all phases of AMATEUR RADIO COMMUNICATIONS



### Model 664

Cardioid dynamic for *greatest* reduction of random noise. Revolutionary Variable-D principle. Indestructible Acoustalloy diaphragm. Frequency response: 40-15,000 cps. High output - 55 db. Less stand. Amateur Net \$51.00



### Model 927

Slim crystal. A new approach to the design of crystal microphones for general use. Available with or without "on-off" switch. High Output: 50 db. 5' cable. Response: 60-8000 cps. Supplied with attractive stand. Amateur Net \$13.50  
927S, Amateur Net \$14.70 (with switch)



### Model 951

Newest Cardioid crystal with exclusive Variable-D. High discrimination against unwanted sounds. Response: 50-11,000 cps, high output - 55 db. Hi-Z On-Off switch. Less stand. Amateur Net \$29.70



### Model 623

Slim dynamic. Use on stand or in hand. Omnidirectional. Response: 60-12,000 cps; output - 56 db. Hi- or Lo-Z by changing one wire in connector. Satin chrome finish. Tilttable head. Off-On Switch. Less stand. Amateur Net \$34.20

# RME®

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## RADIO MANUFACTURING ENGINEERS, INC.

DIVISION OF ELECTRO-VOICE, INC. BUCHANAN, MICHIGAN



# A. R. R. L. COUNTRIES LIST

## Official List for ARRL DX CONTEST and Postwar DXCC

The ARRL Postwar Countries List is the official standard used in connection with the ARRL DX competition and the DX Century Club. To qualify for the DX Century Club Award, an applicant must submit confirmations from at least 100 different countries contacted after November 15, 1945, in accordance with the Postwar DXCC Rules. Copies of the DXCC Rules will be furnished by ARRL on request.

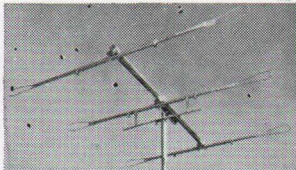
AC3 ..... Sikkim  
AC4 ..... Tibet  
AC5 ..... Bhutan  
AP ..... Pakistan  
BV ..... Formosa  
C (unofficial) ..... China  
C3 ..... Formosa  
C9 ..... Manchuria  
CE ..... Chile  
CE9, KC4, LU-Z, VK1, VP8 ..... Antarctica  
CE9 ..... Easter Island  
CM, CO ..... Cuba  
CN2, KT1 ..... Tangier Zone  
CN8 ..... French Morocco  
CP ..... Bolivia  
CR4 ..... Cape Verde Islands  
CR5 ..... Portuguese Guinea  
CR5 ..... Principe, Sao Thome  
CR6 ..... Angola  
CR7 ..... Mozambique  
CR8 ..... Goa (Portuguese India)  
CR9 ..... Macau  
CR10 ..... Portuguese Timor  
CT1 ..... Portugal  
CT2 ..... Azores Islands  
CT3 ..... Madeira Islands  
CX ..... Uruguay  
DJ, DL, DM ..... Germany  
DU ..... Philippine Islands  
EA ..... Spain  
EA6 ..... Balearic Islands  
EA8 ..... Canary Islands  
EA9 ..... Ifni  
EA9 ..... Rio de Oro  
EA9 ..... Spanish Morocco  
EA9 ..... Spanish Guinea  
EI ..... Elre (Irish Free State)  
EL ..... Liberia  
EQ ..... Iran (Persia)  
ET2 ..... Eritrea  
ET3 ..... Ethiopia  
F ..... France  
FA ..... Algeria  
FB8 ..... Amsterdam & St. Paul Islands  
FB8 ..... Comoro Islands  
FB8 ..... Kerguelen Islands  
FB8 ..... Madagascar  
FC ..... Tromelin Island  
FD ..... Corsica  
FD8 ..... French Togoland  
FE8 ..... French Togoland  
FE8 ..... French Camerouns  
FG ..... French West Africa  
FG ..... Guadeloupe  
FG ..... Saint Martin  
F18 ..... French Indo-China  
FK8 ..... Viet Nam  
FK8 ..... New Caledonia  
FKS8 ..... (See OE)  
FL8 ..... French Somaliland  
FM ..... Martinique  
FN ..... French India  
FO8 ..... Clipperton Island  
FO8 ..... French Oceania (e.g., Tahiti)  
FO8 ..... St. Pierre & Miquelon Islands  
FO8 ..... French Equatorial Africa  
FR7 ..... Reunion Island  
FS7 ..... Saint Martin  
F8, YJ ..... New Hebrides  
FW8 ..... Wallis & Futuna Islands  
FY7 ..... French Guiana & Inini  
G ..... England  
GC ..... Channel Islands  
GD ..... Isle of Man  
GI ..... Northern Ireland  
GM ..... Scotland  
GW ..... Wales  
HA ..... Hungary  
HB1, 9 ..... Switzerland  
HC ..... Ecuador  
HC8 ..... Galapagos Islands  
HE ..... Liechtenstein  
HH ..... Haiti  
HI ..... Dominican Republic  
HK ..... Colombia  
HK0 ..... Archipelago of San Andres  
HL ..... Korea  
HP ..... Panama  
HR ..... Honduras  
HS ..... Siam  
HV ..... Vatican City  
HZ ..... Saudi Arabia (Hedjaz & Nejd)  
I ..... Italy  
I ..... Trieste  
IS ..... Italian Somaliland  
IS ..... Sardinia  
JA, KA ..... Japan  
JY, ZC7 ..... Jordan  
JZ0 ..... Netherlands New Guinea

K ..... (See W)  
KA ..... (See JA)  
KA0 ..... Bonin & Volcano Islands  
KB6 ..... Baker, Howland & American Phoenix Islands  
KC4 ..... Navassa Island  
KC6 ..... Eastern Caroline Islands  
KC6 ..... Western Caroline Islands  
KG1 ..... (See OX)  
KG4 ..... Guantanamo Bay  
KG6 ..... Mariana Islands  
KH6 ..... Hawaiian Islands  
KL7 ..... Johnston Island  
KL7 ..... Alaska  
KM6 ..... Midway Islands  
KP4 ..... Puerto Rico  
KP6 ..... Palmyra Group, Jarvis Island  
KR6 ..... Ryukyu Islands (e.g., Okinawa)  
KS4 ..... Swan Island  
KS6 ..... American Samoa  
KT1 ..... (See CN2)  
KV4 ..... Virgin Islands  
KW6 ..... Wake Island  
KX6 ..... Marshall Islands  
KZ5 ..... Canal Zone  
LA, LB ..... Jan Mayen  
LA, LB ..... Norway  
LA, LB ..... Svalbard (Spitzbergen)  
LU ..... Argentina  
LU-Z ..... (See CE7Z, VP8)  
LX ..... Luxembourg  
LZ ..... Bulgaria  
M1 ..... San Marino  
MP4 ..... Bahrain Island  
MP4 ..... Kuwait  
MP4 ..... Qatar  
MP4 ..... Trucial Oman  
MS4 ..... (See I5)  
OA ..... Peru  
OD5 ..... Lebanon  
OE ..... Austria  
OH ..... Finland  
OH0 ..... Aland Islands  
OK ..... Czechoslovakia  
ON4 ..... Belgium  
OQS, 0 ..... Belgian Congo  
OX, KG1 ..... Greenland  
OY ..... Faeroes  
OZ ..... Denmark  
PA0 ..... Netherlands  
PJ2 ..... Netherlands West Indies  
PJ2M ..... Sint Maarten  
PK1, 2, 3 ..... Java  
PK4 ..... Sumatra  
PK5 ..... Netherlands Borneo  
PK6 ..... Celebes & Molucca Islands  
PK6, 7 ..... Netherlands New Guinea  
PX ..... Andorra  
PY ..... Brazil  
PZ1 ..... Netherlands Guiana  
SM ..... Sweden  
SP ..... Poland  
ST ..... Anglo-Egyptian Sudan  
SU ..... Egypt  
SV ..... Greece  
SV5 ..... Crete  
SV5 ..... Dodecanese (e.g., Rhodes)  
TA ..... Turkey  
TF ..... Iceland  
TG ..... Guatemala  
TI ..... Costa Rica  
TI9 ..... Cocos Island  
UA1, 3, 4, 6 ..... European Russian  
UA1 ..... Socialist Federated Soviet Republic  
UA9, 0 ..... Franz Josephland  
UA9, 0 ..... Asiatic Russian S.F.S.R.  
UB5 ..... Ukraine  
UC2 ..... White Russian Soviet Socialist Republic  
UD6 ..... Azerbaijan  
UF6 ..... Georgia  
UG6 ..... Armenia  
UH8 ..... Turkmenistan  
UJ8 ..... Uzbek  
UL7 ..... Tadzhik  
UM8 ..... Kazakh  
UN1 ..... Kirghiz  
UN1 ..... Karelo-Finnish Republic  
UO5 ..... Moldavia  
UP2 ..... Lithuania  
UQ2 ..... Latvia  
UR2 ..... Estonia  
VE, VO ..... Canada  
VK ..... Australia (including Tasmania)  
VK1 ..... Heard Island  
VK1 ..... Macquarie Island  
VK9 ..... Nauru Island  
VK9 ..... Papua Territory  
VK9 ..... Territory of New Guinea  
VK9 ..... Norfolk Island  
VO ..... (See VE)  
VPI ..... British Honduras

VP2 ..... Leeward Islands  
VP2 ..... Windward Islands  
VP3 ..... British Guiana  
VP4 ..... Trinidad & Tobago  
VP5 ..... Cayman Islands  
VP5 ..... Jamaica  
VP5 ..... Turks & Caicos Islands  
VP6 ..... Barbados  
VP7 ..... Bahama Islands  
VP8 ..... Falkland Islands  
VP8, LU-Z ..... South Georgia  
VP8, LU-Z ..... South Orkney Islands  
VP8, LU-Z ..... South Shetland Islands  
VP8, LU-Z ..... South Shetland Islands  
VP8, LU-Z ..... Bermuda Islands  
VQ1 ..... Zanzibar  
VQ2 ..... Northern Rhodesia  
VQ3 ..... Tanganyika Territory  
VQ4 ..... Kenya  
VQ5 ..... Uganda  
VQ6 ..... British Somaliland  
VQ8 ..... Chagos Islands  
VQ8 ..... Mauritius  
VQ9 ..... Seychelles  
VR1 ..... Gilbert & Ellice Islands & Ocean Island  
VR1 ..... British Phoenix Islands  
VR2 ..... Fiji Islands  
VR3 ..... Fanning Island (Christmas Island)  
VR4 ..... Solomon Islands  
VR5 ..... Tonga (Friendly) Islands  
VR6 ..... Pitcairn Island  
VS1 ..... Singapore  
VS2 ..... Malaya  
VS4 ..... Sarawak  
VS5 ..... Brunei  
VS6 ..... Hong Kong  
VS9 ..... Sultanate of Oman  
VS9 ..... Aden & Socotra  
VS9 ..... Maldives Islands  
VU ..... India  
VU4 ..... Laccadive Islands  
VU5 ..... Andaman and Nicobar Islands  
W, K ..... United States of America  
XE ..... Mexico  
XE4 ..... Revilla Gigedo  
XW8 ..... Laos  
XZ2 ..... Burma  
YA ..... Afghanistan  
YI ..... Iraq  
YJ ..... (See FU8)  
YK ..... Syria  
YN ..... Nicaragua  
YO ..... Rumania  
YS ..... Salvador  
YU ..... Yugoslavia  
YV ..... Venezuela  
ZA ..... Albania  
ZB1 ..... Malta  
ZB2 ..... Gibraltar  
ZC2 ..... Cocos Islands  
ZC3 ..... Christmas Island  
ZC4 ..... Cyprus  
ZC5 ..... British North Borneo  
ZC6 ..... Palestine  
ZC7 ..... (See JY)  
ZD1 ..... Sierra Leone  
ZD2 ..... Nigeria  
ZD3 ..... Gambia  
ZD4 ..... Gold Coast, Togoland  
ZD6 ..... Nyasaland  
ZD7 ..... St. Helena  
ZD8 ..... Ascension Island  
ZD9 ..... Tristan da Cunha & Gough Island  
ZE ..... Southern Rhodesia  
ZK1 ..... Cook Islands  
ZK2 ..... Niue  
ZL ..... New Zealand  
ZL ..... Kermadec Island  
ZM6 ..... British Samoa  
ZM7 ..... Tokelau ((Union Islands))  
ZP ..... Paraguay  
ZS1, 2, 4, 5, 6 ..... Union of South Africa  
ZS2 ..... Prince Edward & Marion Islands  
ZS3 ..... Southwest Africa  
ZS7 ..... Swaziland  
ZS8 ..... Basutoland  
ZS9 ..... Bechuanaland  
ZA1, 2 ..... Monaco  
3V8 ..... Tunisia  
3V8 ..... Cambodia  
4S7 ..... Ceylon  
4W1 ..... Yemen  
4X4 ..... Israel  
5A ..... Libya  
9S4 ..... Saar  
Aldabra Islands  
Fridtjof Nansen Land (Franz Josef Land)  
Mongolia  
Nepal  
Viet Nam  
Wrangel Island

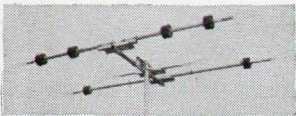


## The Famous WRL hy-gain antenna products

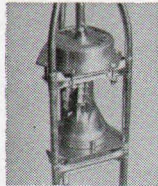


10M, 3-element (shown), \$19.95; 15M, 3-element, \$29.95; 20M, 3-element, \$49.95; latest design principles with carpet beater ends, new boom/mast clamp, combination T or gamma match. All rugged construction.

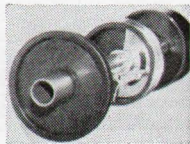
2M, 5-element, \$7.95; 2M, 10-element, \$9.95; 6M, 5-element, \$14.95; ready to assemble easily with no further tuning necessary. Pre-matched and pre-adjusted. Stacking bars available extra, \$3.95.



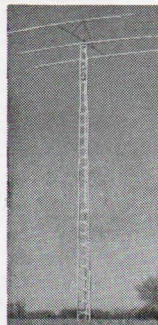
Famous Triple Globe Spanners; 2-element, (shown) \$69.50; 3-element, \$99.75; 5-element, \$395. The standard of comparison for three-band beams. Employ sensational new "Insu-Traps", parallel resonant trap circuits, completely weatherproofed.



Wonder 5-Band Doublet Coils, adjustable, weatherproof, with mess-less new pressure clamps. For 10-80M, only \$12.50 per pair. Complete Wonder Doublet Kit for use with above coils (less coils), \$12.00.



Auto-Topper, multi-band vertical antennas. 10-40M, \$27.95; 10-80M, \$29.95; 10-160M, \$32.95. Employ Insu-Traps. Also available Economy Toppers, 10-40M, \$18.95; 10-80M, \$19.95; 10-160M, \$22.95.



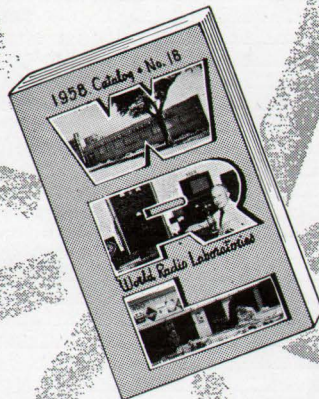
The rugged, self-supporting Globe Spire Tower of commercial construction, for 32, 40 or 48 ft. Available concrete or anchor base mounting. Easy to erect. Coner. base (32 ft.) \$49.95. Anchor base (32 ft.) \$71.50.

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## Globe Scout 680

65 watts CW;  
50 watts on  
fone, plate  
modulated.



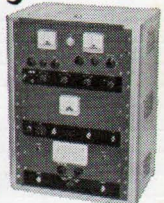
A compact, self-contained, bandswitching transmitter for operation of the 6 through 80 meter bands, with built-in power supply. High level modulation is maintained. TVI-suppressed cabinet. Pi-network output on 10-80M; link-coupled on 6M, matching into low impedance beams. New type, shielded meter. Globe Scout 66 is identical, except bandswitching 10-160M. Size: 8x14x8".

ONLY  
**\$891**  
per mo.

Net: \$109.95  
\$11.00 down  
Kit: \$89.95

## Globe King 500B

A bandswitching transmitter for 540 watts on fone and CW; 540 watts on SSB (P.E.P.), with 10W external exciter.



ONLY  
**\$4060**  
per mo.

Net: \$725.00  
\$72.50 down

JUST  
**10%**  
DOWN

Outperforming any rig in its price and wattage range, the King bandswitches 10-160M in a 31x22x14 1/2" handsome cabinet, especially designed for TVI-suppression. The Transmitter is relay controlled; includes a built-in antenna relay; built-in VFO; and separate power supply for modulator section, allowing better overall voltage regulation. Commercial-type compression circuit keeps modulation at high level. King features grid-block keying for signal clarity. Pi-network matches most antennas, 52-600 ohms. Provisions for crystal operation.

ONLY  
**\$2514**  
per mo.

Net: \$449.00  
\$44.90 down  
Kit: \$375.00

## Globe Champion 300

A bandswitching, 10-160M, Transmitter for 350 watts CW, 275 watts fone, and 300 watts SSB (P.E.P.), with any 10W external exciter.



ONLY  
**\$547**  
per mo.

Net: \$67.50  
\$6.75 down  
Kit: \$54.95

## Globe Chief 90

A completely bandswitching, 90 watt transmitter for 10-160M.



Here's a compact, 8x14x8", sturdy rig with well-filtered, built-in power supply. Pi-network matches most antennas from 52-600 ohms. Modified grid-block keying is employed for maximum safety. Has provisions for VFO input and operation. Kit form includes complete manual and all tubes and parts. Meter and cabinet carefully shielded for reduction of unwanted TVI.

The single-switch bandswitching Champion is extensively TVI-suppressed, filtered and bypassed. High level Class "B" modulation is sustained without usual clipping distortion through use of a new commercial type compression circuit. Pi-network output circuit, 48-700 ohms, built-in VFO, push-to-talk, antenna changeover relay, and improved Time Sequence keying are all features. 1000 volt plate capacity of Final tubes offer 33 1/3% safety factor. Only 12x21 1/2x17" in size, self-contained.

FCC Certified on factory wired and tested models for crystal controlled operation.

All WRL Electronics Transmitters operate on most CAP and MARS frequencies.

Send for Complete Brochure!

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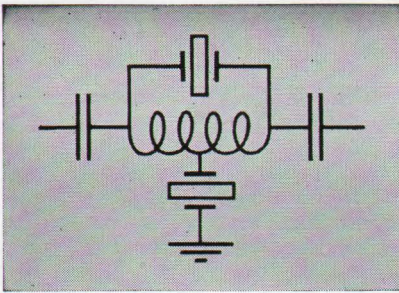


# INTERNATIONAL RADIO AMATEUR PREFIXES

The following prefixes are listed in alphabetical order for convenience in locating the country when DX calls are heard.

AC3	SIKKIM	KG4	GUANTANAMO BAY, CUBA	VO	NEWFOUNDLAND & LABRADOR
AC4	TIBET	KG6	MARIANA ISLANDS (Guam)	VP1	BRITISH HONDURAS
AP	PAKISTAN	KG6I	IWO JIMA ISLAND	VP2	LEEWARD & WINDWARD ISLANDS
C	CHINA	KG6S	SAIPAN ISLAND	VP3	BRITISH GUIANA
CE	CHILE	KG6T	TINIAN ISLAND	VP4	TRINIDAD & TOBAGO IS.
CM-CO	CUBA	KH6	HAWAIIAN ISLANDS	VP5	JAMAICA, CAYMAN, TURKS & CAICOS IS.
CN2	TANGIER ZONE	KJ6	JOHNSTON SLAND	VP6	BARBADOS
CN8	FRENCH MOROCCO	KL7	ALASKA	VP7	BAHAMA ISLANDS
CP	BOLIVIA	KM6	MIDWAY ISLAND	VP8	FALKLAND ISLANDS South Georgia, South Orkney and South Shetland Islands.
CR4	CAPE VERDE ISLANDS	KP4	PUERTO RICO	VP9	BERMUDA ISLANDS
CR5	PORTUGUESE GUINEA	KP6	PALMYRA & JARVIS ISLANDS	VQ1	ZANZIBAR
CR6	ANGOLA	KR6	OKINAWA	VQ2	NORTHERN RHODESIA
CR7	MOZAMBIQUE	KS4	SWAN ISLAND	VQ3	TANGANYIKA TERRITORY
CR8	GOA (Portuguese India)	KS6	U. S. SAMOA	VQ4	KENYA
CR9	MACAU	KV4	VIRGIN ISLANDS	VQ5	UGANDA
CR10	TIMOR ISLAND (Port.)	KW6	WAKE ISLAND	VQ6	BRITISH SOMALILAND
CT1	PORTUGAL	KX6	MARSHALL ISLANDS	VQ8	CHAGOS & MAURITIUS ISLANDS
CT2	AZORES ISLANDS	KZ5	CANAL ZONE	VQ9	SEYCHELLES
CT3	MADERIA ISLANDS	LA	NORWAY	VR1	GILBERT ELLICE & OCEAN ISLANDS
CX	URUGUAY	LU	ARGENTINA	VR2	FIJI ISLANDS
DL	GERMANY	LX	LUXEMBOURG	VR3	FANNING ISLAND
DU	PHILIPPINE ISLANDS	LZ	BULGARIA	VR4	SOLOMON ISLANDS
EA	SPAIN	MD5	SUEZ CANAL ZONE	VR5	TONGA (Friendly) ISLAND
EA6	BALEARIC ISLANDS	MF2	TRIESTE ((British)	VR6	PITCAIRN ISLAND
EA8	CANARY ISLANDS	MP4	BAHREIN IS. & OMAN	VS1	SINGAPORE
EA9	SPANISH MOROCCO	OA	PERU	VS2	MALAYAN UNION
EL	IRELAND	OH	FINLAND	VS4	BRITISH NORTH BORNEO
EL	LIBERIA	OE	AUSTRIA	VS5	BRUNEI & SARAWAK
EQ	IRAN (ex Persia)	OD5	LEBANON	VS6	HONG KONG
ET2	ERITREA	OK	CZECHOSLOVAKIA	VS9	ADEN & SOCOTRA ISLANDS
ET3	ETHIOPIA	ON	BELGIUM	VU	INDIA
F	FRANCE	OQ5	BELGIAN CONGO	VU4	LACCADIVE ISLANDS
FA	ALGERIA	OX	GREENLAND	VU5	ANDAMAN ISLANDS
FB8	MADAGASCAR	OY	FAEROES ISLANDS	W	UNITED STATES
FC	CORSICA	OZ	DENMARK	XE	MEXICO
FD8	FRENCH TOGOLAND	PA, PI	NETHERLANDS	XW8	LAOS
FE8	FRENCH CAMEROONS	PJ	NETH. WEST INDIES	XZ	BURMA
TF8	FRENCH WEST AFRICA	PK1, 2, 3	JAVA	YA	AFGHANISTAN
FG8	GUADELOUPE	PK4	SUMATRA	YI	IRAQ
FI8	FRENCH INDO-CHINA	PK5	BORNEO (Neth. Indies)	YJ	NEW HEBRIDES
F18	VIET NAM	PK6	CELEBES & MOLUCCA ISLANDS	YK	SYRIA
FK8	NEW CALEDONIA	PK7	NETHERLAND NEW GUINEA	YN	NICARAGUA
FL8	FRENCH SOMALILAND	PX	ANDORRA	YO	ROUMANIA
FM8	MARTINIQUE	PY	BRAZIL	YS	SALVADOR
FN	FRENCH INDIA	PZ	SURINAM	YT, YU	YUGOSLAVIA
FO8	TAHITI	SM	SWEDEN	YV	VENEZUELA
FP8	MIQUELON & ST. PIERRE IS.	SP	POLAND	ZA	ALBANIA
FQ8	FRENCH EQUATORIAL AFRICA	ST	SUDAN	ZB1	MALTA
FR8	REUNION ISLAND	SU	EGYPT	ZB2	GIBALTAR
FU8	NEW HEBRIDES	SV	CRETE & GREECE	ZC1	TRANSJORDAN
FY7	FRENCH GUIANA	SV5	DODECANESE ISLANDS	ZC2	COCOS ISLANDS
G	ENGLAND	TA	TURKEY	ZC3	CHRISTMAS ISLAND
GC	CHANNEL ISLANDS	TF	ICELAND	ZC4	CYPRUS
GD	ISLE OF MAN	TG	GUATEMALA	ZD1	SIERRA LEONE
GI	NORTHERN IRELAND	TI	COSTA RICA	ZD2	NIGERIA
GM	SCOTLAND	TT	TANNU TUVA	ZD3	GAMBIA
GW	WALES	UA1-3-4-6	EUROPEAN RUSSIAN SOCIALIST FEDERATED SOVIET REPUBLIC	ZD4	GOLD COAST & TOGOLAND
HA	HUNGARY	UA9-ø	ASIATIC RUSSIAN S. F. S. R.	ZD6	NYASALAND
HB	SWITZERLAND	UB5	UKRAINE	ZD7	SAINT HELENA
HC	ECUADOR	UC5	WHITE RUSSIAN S.S.R.	ZD8	ASCENSION ISLAND
HEI	LIECHTENSTEIN	UD6	AZERBAIJAN	ZD9	TRISTAN DA CUNHA
HH	HAITI	UF6	GEORGIA	ZE	SOUTHERN RHODESIA
HI	DOMINICAN REPUBLIC	UG6	ARMENIA	ZK1	COOK ISLANDS
HK	COLOMBIAN REPUBLIC	UH8	TURKOMAN	ZK2	NIUE
HL1	KOREA	UI8	UZBEK	ZL	NEW ZEALAND
HP	PANAMA	UJ8	TADZHIK	ZM	WESTERN SAMOA
HR	HONDURAS	UL7	KAZAKH	ZP	PARAGUAY
HS	SIAM	UMB	KIRGHIZ	ZS	UNION OF SOUTH AFRICA
HV	VATICAN CITY	UN1	KARELO-FINNISH REPUBLIC	3A2	MONACO
HZ	SAUDI ARABIA	UO5	MOLDAVIA	3V8	TUNISIA
I	ITALY	UP	LITHUANIA	3W8	CAMBODIA
K	UNITED STATES	UQ	LATVIA	4S7	CEYLON
KA	JAPAN	UR	ESTONIA	4X4	ISRAEL
KB6	BAKER, CANTON, ENDERBURY, HOWLAND & PHOENIX ISLANDS	VE	CANADA	5A2	LIBYA
KC4	ANTARCTICA	VK	AUSTRALIA	9S4	SAARLAND
KC6	CAROLINE ISLANDS	VK7	TASMANIA		
		VK9	PAPUA TERRITORY		





*From this exclusive HIGH FREQUENCY filter originates the cleanest signal on the air!*



**HT-32**  
Transmitter/exciter  
Amateur net \$675<sup>00</sup>

**Hallicrafters new HT-32 transmitter features 5.0 mc. quartz crystal filter... new bridged-tee modulator... high stability... gear-driven V.F.O.**

• Forget your old ideas about SSB signal clarity! The HT-32 establishes *entirely new standards* with two major achievements of the world famous Hallicrafters laboratories—yours exclusively in the HT-32:

- 1. 5-0 mc. quartz crystal filter.** Result of a 3-year research program, the crystal filter system now is commercially practical at *high frequencies*. System cuts unwanted sideband 50 db. or more!
- 2. New bridged-tee modulator.** Temperature stabilized and compensated network provides carrier suppression *in excess of 50-db.* Patented diode application develops

sideband energy from audio voltage. World's most stable modulator.

These and many other features make your decision *clear*—compare the HT-32 with any other transmitter available. Your supplier has all the details. Stop by and see him today.

#### ADDITIONAL FACTS ABOUT THE HT-32

- SSB, AM or CW output on 80, 40, 20, 15, 11-10 meter bands.
- High-stability, gear-driven V.F.O.
- 144 watts peak power input.
- Distortion products down 30 db or more.
- Complete band switching.
- C.T.O. direct reading in kilocycles.
- T.V.I. suppressed.

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# PREFIXES—BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes. Characters in ( ) designate the continent and zone in which the country is located. Abbreviations are as follows: A—Asia, AF—Africa, E—Europe, NA—North America, O—Oceania, SA—South America.

ADEN	(A-21)	VS9	GUAM	(O-27)	KG6	REUNION ISLAND	(AF-39)	FR8
AFGHANISTAN	(A-21)	YA	GUANTANAMO BAY	(NA-8)	KG4	RHODESIA, NORTHERN	(AF-36)	VQ2
ALASKA	(NA-1)	KL7	GUATEMALA	(NA-7)	TG	RHODESIA, SOUTHERN	(AF-38)	ZE
ALBANIA	(E-15)	ZA	GUIANA, BRITISH	(SA-9)	VP3	ROUMANIA	(E-20)	YO
ALGERIA	(AF-33)	FA	GUIANA, FRENCH	(SA-9)	FY7	RYUKYU ISLANDS	(A25)	KR6
ANDORRA	(E-14)	PX	GUIANA, NETHERLANDS	(SA-9)	PZ			
ANGLO-EGYPTIAN SUDAN	(AF-34)	ST	GUINEA, PORTUGUESE	(AF-35)	CR5	SAARLAND	(E-14)	9S4
ANGOLA	(AF-36)	CR6	HAITI	(NA-8)	HH	SAINT HELENA	(AF-36)	ZD7
ARGENTINA	(SA-13)	LU	HAWAIIAN ISLANDS	(O-31)	KH6	SAIPAN ISLAND	(O-27)	KG6S
ASCENSION ISLAND	(AF-36)	ZD8	HONDURAS	(NA-7)	HR	SALVADOR	(NA-7)	YS
AUSTRALIA	(O-29 & 30)	VK	HONG KONG	(A-24)	VS6	SAMOA (U.S.)	(O-32)	KS6
AUSTRIA	(E-15)	OE	HOWLAND ISLAND	(O-31)	KB6	SAMOA (Western)	(O-32)	ZM
AZORES ISLANDS	(E-14)	CT2	HUNGARY	(E-15)	HA	SARAWAK	(O-28)	VS5
						SAUDI ARABIA	(A-21)	HZ
BAHAMA ISLANDS	(NA-8)	VP7	ICELAND	(E-40)	TF	SCOTLAND	(E-14)	GM
BAHREIN ISLANDS	(A-21)	MP4	INDIA	(A-21)	VU	SEYCHELLES	(AF-39)	VQ9
BAKER ISLAND	(O-31)	KB6	IRAN	(A-21)	EQ	SIAM	(A-26)	HS
BALEARIC ISLANDS	(E-14)	EA6	IRAQ	(A-21)	YI	SIERRA LEONE	(AF-35)	ZD1
BARBADOS	(NA-8)	VP6	IRELAND	(E-14)	EI	SIKKIM	(A-22)	AC3
BASUTOLAND	(AF-38)	ZS4	ISLE OF MAN	(E-14)	GD	SOCOTRA ISLAND	(A-37)	VS9
BELGIAN CONGO	(AF-36)	OQ	ISRAEL	(A-20)	4X4	SOLOMON ISLANDS	(O-28)	VR4
BELGIUM	(E-14)	ON	ITALY	(E-15)	I	SOMALILAND, British	(AF-37)	VQ6
BERMUDA ISLANDS	(NA-5)	VP9	IWO JIMA ISLAND	(O-25)	KG6I	SOMALILAND, French	(AF-37)	FL8
BOLIVIA	(SA-10)	CP	JAMAICA	(NA-8)	VP5	SOMALILAND, Italian	(AF-37)	IS
BORNEO (Br. North)	(O-28)	VS4	JAN MAYEN ISLAND	(E-40)	OY	SOUTH GEORGIA	(SA-13)	VP8
BORNEO (Neth. Indies)	(O-28)	PK5	JAPAN	(A-25)	KA	SOUTH ORKNEY ISLANDS	(SA-13)	VP8
BRAZIL	(SA-11)	PY	JARVIS ISLAND	(O-31)	KP6	SOUTH SANDWICH ISLANDS	(SA-13)	VP8
BRITISH HONDURAS	(NA-7)	VP1	JAVA	(O-28)	PK1, 2, 3	SOUTH SHETLAND ISLANDS	(SA-13)	VP8
BRUNEI	(O-28)	VS5	JOHNSTON ISLAND	(O-31)	KJ6	SOUTHWEST AFRICA	(AF-38)	ZS3
BULGARIA	(E-20)	LZ						
BURMA	(A-26)	XZ	KENYA	(AF-37)	VQ4	SOVIET UNION:		
CAMEROONS, British	(AF-36)	ZD2	KERMANIC ISLANDS	(O-32)	ZL1	EUROPEAN RUSSIAN SOCIALIST		
CAMEROONS, French	(AF-36)	F8	KOREA	(A-25)	HL1	FEDERATED SOVIET REP.	(E-16)	UA1, 3, 4, 6
CAMBODIA	(A-26)	3W8	LABRADOR	(NA-2)	VO	ASIATIC RUSSIAN S.F.S.R.	(A-18, 19)	UA9, 6
CANADA	(NA-1 to 5)	VE	LACCADIVE ISLANDS	(A-22)	VU4	UKRAINE	(E-16)	UB5
CANAL ZONE	(NA-7)	KZ5	LAOS	(A-26)	XW8	WHITE RUSSIAN S.S.R.	(E-16)	UC
CANARY ISLANDS	(AF-33)	EA8	LEBANON REPUBLIC	(A-20)	OD5	AZERBAIJAN	(E-21)	UD6
CANTON ISLAND	(O-31)	KB6	LEEWARD ISLANDS	(NA-8)	VP2	GEORGIA	(E-21)	UF6
CAPE VERDE ISLANDS	(AF-35)	CR4	LIBERIA	(AF-35)	EL	ARMENIA	(E-21)	UG6
CAROLINE ISLANDS	(O-27)	KC6	LIBYA	(AF-34)	5A2	TURKOMAN	(A-17)	UH8
CAYMAN ISLANDS	(NA-8)	VP5	LIECHTENSTEIN	(E-14)	HE1	UZBEK	(A-17)	UI8
CELEBES	(O-28)	PK6	LITTLE AMERICA	(SA-13)	KC4	TADZHIK	(A-17)	UI8
CEYLON	(A-22)	VS7	LUXEMBOURG	(E-14)	LX	KAZAKH	(A-17)	UL7
CHAGOS ISLANDS	(AF-39)	VQ8	MACAU	(A-24)	CR9	KIRGHIZ	(A-17)	UM8
CHANNEL ISLANDS	(E-14)	GC	MADAGASCAR	(AF-39)	FB8	KARELO-FINNISH REP.	(E-16)	UN1
CHILE	(SA-12)	CE	MADEIRA ISLANDS	(AF-33)	CT3	MOLDAVIA	(E-16)	UQ5
CHINA	(A-23 & 24)	C	MALAYA	(A-28)	VS1, 2	LITHUANIA	(E-15)	UP
CHRISTMAS ISLAND	(O-29)	ZC3	MALDIVES ISLANDS	(A-22)	VS9	LATVIA	(E-15)	UQ
COCOS ISLAND	(NA-7)	TI	MALTA	(E-15)	ZB1	ESTONIA	(E-15)	UR
COCOS ISLANDS	(O-29)	ZC2	MARIANAS ISLANDS	(O-27)	KG6	SPAIN	(E-14)	EA
COLOMBIA	(SA-9)	HK	MARSHALL ISLANDS	(O-31)	KX6	SUMATRA	(O-28)	PK4
COOK ISLANDS	(O-32)	ZK1	MARTINIQUE	(NA-8)	FM8	SWAN ISLAND	(NA-7)	KS4
CORSICA	(E-15)	FC	MAURITIUS	(AF-39)	VQ8	SWEDEN	(E-14)	SM
COSTA RICA	(NA-7)	TI	MEXICO	(NA-6)	XE	SWITZERLAND	(E-14)	HB
CRETE	(E-20)	SV	MIDWAY ISLAND	(O-31)	KM6	SYRIA	(A-20)	YK
CUBA	(NA-8)	CM, CO	MIQUELON ISLAND	(NA-5)	FP8	TANGANYIKA	(AF-37)	VQ3
CYPRUS	(A-20)	ZC4	MONACO	(E-14)	3A2	TANGIER ZONE	(AF-33)	CN2
CZECHOSLOVAKIA	(E-15)	OK	MOROCCO, French	(AF-33)	CN	TANNU TUVA	(A-23)	TT
			MOROCCO, Spanish	(AF-33)	EA9	TIBET	(A-23)	AC4
			MOZAMBIQUE	(AF-37)	CR7	TIMOR, Portuguese	(O-28)	CR10
ECUADOR	(SA-10)	HC	NAVASSA ISLAND	(NA-8)	KC4	TINIAN ISLAND	(O-27)	KG6T
EGYPT	(AF-34)	SU	NETHERLANDS	(E-14)	PA	TOGOLAND, French	(AF-35)	FD8
ELLICE ISLANDS	(O-31)	VR1	NETHERLAND W. INDIES	(SA-9)	PJ	TONGA (Friendly) ISLANDS	(O-32)	VR5
ENGLAND	(E-14)	G	NEW CALEDONIA	(O-32)	FK8	TRANSJORDAN	(A-20)	ZC1
ERITREA	(AF-37)	ET2	NEWFOUNDLAND	(NA-5)	VO	TRINIDAD & TOBAGO	(SA-9)	VP4
ETHIOPIA	(AF-37)	ET3	NEW GUINEA, Netherlands	(O-28)	PK6	TRISTAN da CUNHA & Gough Island	(AF-38)	ZD9
			NEW GUINEA, Territory of	(O-28)	VK9	TUNISIA	(AF-33)	3V8
FAEROES, The	(E-14)	OY	NEW HEBRIDES	(O-32)	FU8, YJ	TURKEY	(A-20)	TA
FAKLAND ISLANDS	(SA-13)	VP8	NEW ZEALAND	(O-32)	ZL	TURKS & CAICOS ISLANDS	(NA-8)	VP5
FANNING ISLAND	(O-31)	VR3	NICARAGUA	(NA-7)	YN			
FII ISLANDS	(O-32)	VR2	NIGERIA	(AF-35)	ZD2	UGANDA	(AF-37)	VQ5
FINLAND	(E-15)	OH	NIUE	(O-32)	ZK2	UNION OF SOUTH AFRICA	(AF-38)	ZS
FRANCE	(E-14)	F	NORTHERN IRELAND	(E-14)	GI	UNITED STATES of AMERICA	(NA-3, 4, 5)	W, K
FR. EQUATORIAL AFRICA	(AF-36)	FQ8	NORWAY	(E-14)	LA	URUGUAY	(SA-13)	CX
FRENCH INDIA	(A-22)	FN	NYASALAND	(AF-37)	ZD6			
FRENCH INDO-CHINA	(A-26)	F18	OKINAWA	(A-25)	KR6	VATICAN CITY	(E-15)	HV
FRENCH OCEANIA	(O-32)	FO8	OMAN	(A-21)	MP4	VENEZUELA	(SA-9)	YV
FRENCH WEST AFRICA	(AF-35)	FF8	PAKISTAN	(A-21, 22)	AP	VIET NAM	(A-26)	F18
			PANAMA	(NA-7)	HP	VIRGIN ISLANDS	(NA-8)	KV4
GAMBIA	(AF-35)	ZD3	PAPUA TERRITORY	(O-28)	VK9			
GERMANY	(E-14)	DL	PARAGUAY	(SA-11)	ZP	WAKE ISLAND	(O-31)	KW6
GIBRALTAR	(E-14)	ZB2	PERU	(SA-10)	OA	WALES	(E-14)	GW
GILBERT ISLANDS	(O-31)	VR1	PHILIPPINE ISLANDS	(O-27)	DU	WINDWARD ISLANDS	(NA-8)	VP2
GOA (Portuguese India)	(A-22)	CR8	PITCAIRN ISLAND	(O-32)	VR6			
GOLD COAST	(AF-35)	ZD4	POLAND	(E-15)	SP	YUGOSLAVIA	(E-15)	YT, YU
GREECE	(E-20)	SV	PORTUGAL	(E-14)	CT1			
GREENLAND	(NA-40)	OX	PUERTO RICO	(NA-8)	KP4	ZANZIBAR	(AF-37)	VQ1
GUADELOUPE	(NA-8)	FG8						



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buy ANY*  
**HAM EQUIPMENT**  
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**Model SX101  
Hallicrafters**

\$39.95 down, 20 monthly payments of \$19.50.  
CASH PRICE **\$395.00**. Big rugged, the SX101  
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amazing marvel of stability . . . designed to out-  
perform any other model in the market today.

These are a few items in stock for immediate shipment:

Hallicrafter SX 99.....	\$ 149.95	National NC109 .....	199.95
Hallicrafter SX100 .....	295.00	National NC300 .....	399.00
Hallicrafter HT32 .....	675.00	Elmac PMR7 .....	159.00
Collins 75A4 .....	695.00	Elmac AF-67 .....	177.00
Collins KWS1 .....	2095.00	Gonset G66B .....	209.50
Hammarlund HQ100 .....	169.00	Gonset G77 .....	289.50
Hammarlund HQ110 .....	229.00	Gonset Communicators .....	239.50
Hammarlund HQ150 .....	294.00	RME 4350 .....	229.00

Complete stock of all transmitters, re-  
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Henry has everything in the  
amateur equipment field,  
new or used . . . transmit-  
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# POSTAL INFORMATION

The following table shows the postal rates for QSL cards, first class letters and air mail to the United States Possessions and foreign countries. International reply coupons may be purchased at any United States Post office. Upon presentation at a post office in any country except Korea, the coupon will entitle the person presenting it to receive a postage stamp or stamps of that country of sufficient value to prepay an ordinary letter of the first unit of weight addressed for delivery in this country. The column marked "RP" shows the number of international reply coupons required to prepay an air mail letter of the first weight unit from the countries indicated to the United States. The first class rates show the rate for the first ounce. Add four cents for each additional ounce or fraction. The air mail rates are for each half ounce except where indicated.

COUNTRY	QSL cards	First class	Air mail	RP	COUNTRY	QSL cards	First class	Air mail	RP	COUNTRY	QSL cards	First class	Air mail	RP
ADEN	\$.04	\$.08	\$.25	7	FRENCH OCEANIA	.04	.08	.25	3	NORWAY	.04	.08	.15	2
AFGHANISTAN	.04	.08	.25	7	FRENCH SOMALILAND	.04	.08	.25	3	NYASALAND	.04	.08	.25	4
ALASKA	.02	.03	.06*		FRENCH SUDAN	.04	.08	.25	2	OKINAWA	.04	.08	.25	5
ALBANIA	.04	.08	.15	2	FRENCH TOGOLAND	.04	.08	.25	2	PAKISTAN	.04	.08	.25	5
ALGERIA	.04	.08	.15	2	GAMBIA	.04	.08	.25	6	PANAMA	.04	.08	.10	3
ANDORRA	.04	.08	.15	8	GERMANY	.04	.08	.15	2	PAPUA	.04	.08	.25	6
ANGLO-EGYPTIAN SUDAN	.04	.08	.25	4	GIBRALTAR	.04	.08	.15	3	PARAGUAY	.04	.08	.10	3
ANGOLA	.04	.08	.25	4	GILBERT & ELLICE IS.	.04	.08	.25	6	PERU	.04	.08	.10	5
ANGUILLA	.04	.08	.10	6	GOLD COAST COLONY	.04	.08	.25	11	PHILIPPINE IS.	.04	.08	.25	15
ANTIGUA	.04	.08	.10	6	GREECE	.04	.08	.15	2	POLAND	.04	.08	.15	3
ARGENTINA	.04	.08	.10	5	GRENADA, BWI	.04	.08	.10	3	PORTUGAL	.04	.08	.15	3
ARUBA	.04	.08	.10	1	GRENADINES, BWI	.04	.08	.10	3	PORT. EAST AFRICA	.04	.08	.25	3
AUSTRALIA	.04	.08	.25	4	GUADELOUPE	.04	.08	.10	2	PORTUGUESE GUINEA	.04	.08	.25	3
AUSTRIA	.04	.08	.15	2	GUAM	.02	.03	.06*		PORTUGUESE INDIA	.04	.08	.25	3
AZORES	.04	.08	.15	3	GUATEMALA	.04	.08	.10	2	PORTUGUESE TIMOR	.04	.08	.25	5
BAHAMAS	.04	.08	.10	2	HATTI	.04	.08	.10	2	PORTUGUESE W. AFRICA	.04	.08	.25	3
BAHREIN ISLANDS	.04	.08	.25	4	HAWAII	.02	.03	.06*		PUERTO RICO	.02	.03	.06*	
BALEARIC ISLANDS	.04	.08	.15	8	HONDURAS	.04	.08	.10	2	REDONDA, BWI	.04	.08	.10	6
BALUCHISTAN	.04	.08	.25	5	HONG KONG	.04	.08	.25	5	REUNION ISLAND	.04	.08	.25	3
BARBADOS	.04	.08	.10	2	HUNGARY	.04	.08	.15	3	RIO DE ORO	.04	.08	.25	10
BARBUDA	.04	.08	.10	2	ICELAND	.04	.08	.15	2	ROMANIA	.04	.08	.15	5
BECHUANALAND	.04	.08	.25	6	INDIA	.04	.08	.25	6	RYUKYU ISLANDS	.04	.08	.25	5
BELGIAN CONGO	.04	.08	.25	3	INDO-CHINA	.04	.08	.25	3	ST CHRISTOPHER, BWI	.04	.08	.10	6
BELGIUM	.04	.08	.15	2	INDONESIA	.04	.08	.25	4	ST HELENA	.04	.08	.25	6
BERMUDA	.04	.08	.10	3	IRAN	.04	.08	.25	5	ST KITS, BWI	.04	.08	.10	6
BOLIVIA	.04	.08	.10	3	IRAQ	.04	.08	.25	3	ST LUCIA, BWI	.04	.08	.10	4
BRAZIL	.04	.08	.10	3	ISRAEL	.04	.08	.25	2	ST PIERRE & MIQUELON	.04	.08	.08*	3
BRITISH CAMEROONS	.04	.08	.25	6	ITALY	.04	.08	.15	2	ST VINCENT, BWI	.04	.08	.10	4
BRITISH GUIANA	.04	.08	.10	4	IVORY COAST	.04	.08	.25	2	SALVADOR	.04	.08	.10	2
BRITISH HONDURAS	.04	.08	.10	2	JAMAICA	.04	.08	.10	2	SAMOA (Br.)	.04	.08	.25	3
BRITISH SOMALILAND	.04	.08	.25	8	JAPAN	.04	.08	.25	4	SAN MARINO	.04	.08	.15	2
BR. VIRGIN ISLANDS	.04	.08	.10	6	JORDAN	.04	.08	.25	5	SARAWAK	.04	.08	.25	6
BRUNEI	.04	.08	.25	6	KENYA & UGANDA	.04	.08	.25	5	SAUDI ARABIA	.04	.08	.25	3
BULGARIA	.04	.08	.15	3	KOREA	.04	.08	.25	5	SCOTLAND	.04	.08	.15	6
BURMA	.04	.08	.25	5	LABUAN	.04	.08	.25	6	SENEGAL	.04	.08	.25	2
CANADA	.02	.03	.06*	2	LATVIA	.04	.08	.15	4	SEYCHELLES	.04	.08	.25	3
CANAL ZONE	.02	.03	.06*		LEBANON	.04	.08	.25	3	SIERRA LEONE	.04	.08	.25	8
CANARY ISLANDS	.04	.08	.15	8	LIBERIA	.04	.08	.25	5	SOLOMON ISLANDS	.04	.08	.25	5
CANTON ISLAND	.02	.03	.06*		LIBYA	.04	.08	.15	5	SOMALIA	.04	.08	.25	5
CAPE VERDE ISLANDS	.04	.08	.25	3	LIECHTENSTEIN	.04	.08	.15	2	SOUTHERN RHODESIA	.04	.08	.25	6
CAYMAN ISLANDS	.04	.08	.10	2	LITHUANIA	.04	.08	.15	4	SOUTHWEST AFRICA	.04	.08	.25	6
CEYLON	.04	.08	.25	7	LUXEMBOURG	.04	.08	.15	2	SPAIN	.04	.08	.15	8
CHILE	.04	.08	.10	6	MACAO	.04	.08	.25	3	SPANISH GUINEA	.04	.08	.25	10
CHINA	.04	.08	.25	4	MADAGASCAR	.04	.08	.25	4	STRAIT SETTLEMENTS	.04	.08	.25	5
COLOMBIA	.04	.08	.10	7	MADEIRA ISLANDS	.04	.08	.15	3	SURINAM	.04	.08	.10	3
COOK ISLANDS	.04	.08	.25	6	MALAYA	.04	.08	.25	6	SWEDEN	.04	.08	.15	2
CORSICA	.04	.08	.15	2	MALTA	.04	.08	.15	4	SWITZERLAND	.04	.08	.15	2
COSTA RICA	.04	.08	.10	3	MANCHURIA	.04	.08	.25	4	SYRIA	.04	.08	.25	3
CUBA	.04	.08	.10	3	MARTINIQUE	.04	.08	.10	2	TAIWAN (Formosa)	.04	.08	.25	4
CURACAO	.04	.08	.10	1	MAURITANIA	.04	.08	.25	2	TANGANYIKA	.04	.08	.25	5
CYPRUS	.04	.08	.25	3	MAURITIUS	.04	.08	.25	3	THAILAND	.04	.08	.25	3
CYRENAICA	.04	.08	.15	5	MEXICO	.02	.03	.06*		TIBET	.04	.08	.25	4
CZECHOSLOVAKIA	.04	.08	.15	2	MIDWAY ISLAND	.02	.03	.06*		TONGA ISLANDS	.04	.08	.25	5
DAHOMY	.04	.08	.25	2	MONACO	.04	.08	.15	2	TRIESTE	.04	.08	.15	2
DENMARK	.04	.08	.15	2	MONTSERRAT, BWI	.04	.08	.10	6	TRINIDAD	.04	.08	.10	3
DODECANESE IS.	.04	.08	.15	2	MOROCCO, (Br. & Fr.)	.04	.08	.15	2	TRIPOLITANIA	.04	.08	.15	5
DOMINICA	.04	.08	.10	4	MOROCCO, (Spain)	.04	.08	.15	8	TRISTAN DA CUNHA	.04	.08	.25	3
DOMINICAN REPUBLIC	.04	.08	.10	2	MOZAMBIQUE	.04	.08	.25	3	TUNISIA	.04	.08	.15	2
Ecuador	.04	.08	.10	2	NAURU ISLAND	.04	.08	.25	3	TURKEY	.04	.08	.15	3
EGYPT	.04	.08	.15	2	NETHERLANDS	.04	.08	.15	3	TURKS ISLAND	.04	.08	.10	3
EIRE (Ireland)	.04	.08	.15	5	NETHERLANDS W. INDIES	.04	.08	.10	1	UGANDA	.04	.08	.25	5
ENGLAND	.04	.08	.15	6	NEVIS	.04	.08	.10	6	UNION OF SOUTH AFRICA	.04	.08	.25	6
ERITREA	.04	.08	.25	6	NEW CALEDONIA	.04	.08	.25	3	URUGUAY	.04	.08	.10	4
ESTONIA	.04	.08	.15	4	NEWFOUNDLAND	.02	.03	.06*		U.S.S.R.	.04	.08	.15	4
ETHIOPIA	.04	.08	.25	3	NEW GUINEA	.04	.08	.25	6	U. S. VIRGIN IS.	.02	.03	.06*	
FALKLAND ISLANDS	.04	.08	.10	2	NEW HEBRIDES	.04	.08	.25	3	VATICAN CITY	.04	.08	.15	2
FAEROES ISLANDS	.04	.08	.15	2	NEW ZEALAND	.04	.08	.25	6	VENEZUELA	.04	.08	.10	3
FIIJI ISLANDS	.04	.08	.25	6	NICARAGUA	.04	.08	.10	3	WAKE ISLAND	.02	.03	.06*	
FINLAND	.04	.08	.15	2	NIGER	.04	.08	.25	2	YEMEN	.04	.08	.25	2
FRANCE	.04	.08	.15	2	NIGERIA	.04	.08	.25	6	YUGOSLAVIA	.04	.08	.15	2
FRENCH CAMEROONS	.04	.08	.25	3	NORTH BORNEO	.04	.08	.25	7	ZANZIBAR	.04	.08	.25	6
FRENCH EQ. AFRICA	.04	.08	.25	3	NORTHERN IRELAND	.04	.08	.15	6					
FRENCH GUIANA	.04	.08	.10	2	NORTHERN RHODESIA	.04	.08	.25	7					
FRENCH GUINEA	.04	.08	.25	2										
FRENCH INDIA	.04	.08	.25											

\* rate per ounce.

QSL cards can be sent to any country in the world by air mail for 10 cents.



# MOSLEY "Antenna Design"

*makes the difference in...*

- PERFORMANCE
- DURABILITY

- HIGH GAIN
- LOW SWR

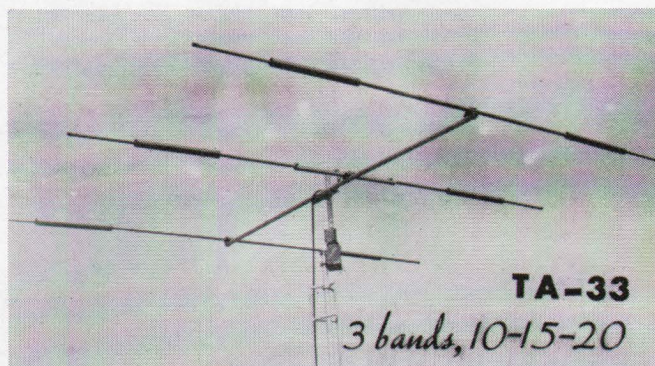


## Introducing... the newest in "Trap" antenna design the MOSLEY TRAP

**MASTER**

Now—the newest concept in trap antenna design has been incorporated into the new MOSLEY Trap-Master! Aluminum enclosed coils that defy weather, dirt and corrosion. Aluminum elements, boom and element support—lasting quality that requires no bracing or bridging—reduces element sag and minimizes wind load!

High gain? Up to 8db on all bands with 25db front-to-back and 1.5/1 SWR! This is built-in performance that sets your MOSLEY Beam years ahead in the field of Amateur Radio.



The MOSLEY "Trap-Master", model TA-33 \$99.75 am.net.

### Performance Chart For All MOSLEY Beams

MODEL NO. DESCRIPTION	"VEST POCKET" DESIGN										"SUPER" DESIGN				TRAP
	VPA 20-3 20 M. 3 EL.	VPA 20-2 20 M. 2 EL.	VPA 40-2 40 M. 2 EL.	VPA 1015-2 10-15 M. 2 EL.	VPA 1015-3 10-15 M. 3 EL.	VPA 1020 10-20 M. 6 EL.	VPA 1520 15-20 M. 6 EL.	VPA-3B 15-20-40 M. 4 EL.	VPA-73 10-15-20 M. 7 EL.	S-103 10 M. 3 EL.	S-153 15 M. 3 EL.	S-203 20 M. 3 EL.	S-1510 15-10 M. 6 EL.	T4-33 10-15-20 M. 3 EL.	
Gain	7.5db	5db	5db	5db	7.5db	7.5db	7.5db	5db	7.5db	8db	8db	8db	8db	8db	
Front-to-back	28db	20db	19db	15db	20db	28db	20db	20db	20db	20db	20db	20db	20db	25db	
SWR	1.5/1	1.5/1	1.1/1	1.5/1	1.2/1	1.5/1	1.2/1	1.1/1	1.5/1	1.2/1	1.2/1	1.2/1	1.2/1	1.5/1	
Max. El. Lgth.	23'	23'	36' 1¼"	14'	14'	22'	22'	36'	24' 6"	17' 3"	24'	34' 6"	24'	28'	
Boom Lgth.	12'	6'	14' 10"	4' 6"	10'	12'	12'	15'	12'	8' 4"	10'	14' 10"	12'	14'	
Turning radius	13.5'	12.5'	19.5'	7'	8.6'	13.5'	13.5'	19.5'	14'	9.5'	13'	18.5'	13.5'	15.5'	
Weight	37 lb.	25 lb.	68 lb.	18 lb.	24 lb.	57 lb.	58 lb.	75 lb.	61 lb.	20 lb.	22 lb.	71 lb.	47 lb.	53 lb.	
Price	\$66.37	44.37	74.95	39.89	59.68	120.79	129.90	135.00	151.20	39.00	45.28	74.95	72.85	99.75	

ALL MOSLEY ROTARY BEAMS ARE RATED 1 KW.

\* TOTAL NUMBER OF ELEMENTS PER BEAM.

The finest communication arrays in the world are designed by MOSLEY engineers and built in strict accordance with specifications! Top-notch craftsmanship and high grade material are prime requisites for all antennas...providing the owners of MOSLEY beams with the most outstanding value per dollar invested!

ROTARY BEAM ANTENNAS • COMMERCIAL ARRAYS • VERTICAL ANTENNAS • ELECTRONIC COMPONENTS

## MOSLEY ELECTRONICS, INC.

8622 St. Charles Rock Road

St. Louis 14, Missouri

Export Department: 15 Moore St., New York 4, N.Y.



# INTERNATIONAL "Q" SIGNALS

Abbreviation	Question	Answer or Advice	Abbreviation	Question	Answer or Advice
QRA	What is the name of your station?	The name of my stations is . . .	QSX	Will you listen to . . . [call sign(s)] on . . . kc/s (or Mc/s)	I am listening to . . . [call sign(s)] on . . . kc/s (or Mc/s).
QRB	How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres)	QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency [or on . . . kc/s (or Mc/s)].
QRD	Where are you bound and where are you from?	I am bound for . . . from . . .	QSZ	Shall I send each word or group more than once?	Send each word or group twice (or . . . times).
QRG	Will you tell me my exact frequency or that of . . . ?	Your exact frequency (or that of . . . is . . . kc/s (or Mc/s).	QTA	Shall I cancel telegram number . . . as if it had not been sent?	Cancel telegram number . . . as if it had not been sent.
QRH	Does my frequency vary?	Your frequency varies.	QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QRI	How is the tone of my transmission?	The tone of your transmission is . . . (1. Good; 2. Variable; 3. Bad).	QTC	How many telegrams have you to send?	I have . . . telegrams for you (or for . . .).
QRK	What is the readability of my signals (or those of . . . )?	The readability of your signals (or those of . . . ) is . . . (1. Unreadable; 2. Readable now and then; 3. Readable, but with difficulty; 4. Readable; 5. Perfectly readable).	QTE	What is my TRUE bearing from you?  What is my TRUE bearing from . . . (call sign)?  or What is the TRUE bearing of . . . (call sign) from . . . (call sign)?	Your TRUE bearing from me is . . . degrees (at . . . hours) or Your TRUE bearing from . . . (call sign) was . . . degrees (at . . . hours) or The TRUE bearing of . . . (call sign) from . . . (call sign) was . . . degrees at . . . hours).
QRL	Are you busy?	I am busy (or I am busy with . . .). Please do not interfere.	QTG	Will you send two dashes of ten seconds each followed by your call sign (repeated . . . times) [on . . . kc/s (or Mc/s)]?  or Will you request . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s)?	I am going to send two dashes of ten seconds each followed by my call sign (repeated . . . times) [on . . . kc/s (or Mc/s)] or I have requested . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s).
QRM	Are you being interfered with?	I am being interfered with.	QTH	What is your position in latitude and longitude (or according to any other indication)?	My position is . . . latitude . . . longitude (or according to any other indication).
QRN	Are you troubled by static?	I am troubled by static.	QTI	What is your TRUE track?	My TRUE track is . . . degrees.
QRO	Shall I increase power?	Increase power.	QTI	What is your speed?	My speed is . . . knots (or kilometres per hour).
QRP	Shall I decrease power?	Decrease power.	QTL	What is your TRUE heading?	My TRUE heading is . . . degrees.
QRQ	Shall I send faster?	Send faster (. . . words per minute).	QTN	At what time did you depart from . . . (place)?	I departed from . . . (place) at . . . hours.
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.	QTO	Have you left dock (or port)?  Are you airborne?  or Are you going to enter dock (or port)?  or Are you going to alight (or land)?	I have left dock (or port) or I am airborne. or I am going to enter dock (or port) or I am going to alight (or land).
QRS	Shall I send more slowly?	Send more slowly (. . . words per minute).	QTP	Can you communicate with my station by means of the International Code of Signals?	I am going to communicate with your station by means of the International Code of Signals.
QRT	Shall I stop sending?	Stop sending.	QTR	What is the correct time?	The correct time is . . . hours.
QRU	Have you anything for me?	I have nothing for you.	QTS	Will you send your call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that your frequency may be measured?	I will send my call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that my frequency may be measured.
QRV	Are you ready?	I am ready.	QTV	What are the hours during which your station is open?	My station is open from . . . to . . . hours.
QRW	Shall I inform . . . that you are calling him on . . . kc/s (or Mc/s).	Please inform . . . that I am calling him on . . . kc/s (or Mc/s).	QTV	Shall I stand guard for you on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours)?	Stand guard for me on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours).
QRX	When will you call me again?	I will call you again at . . . hours [on . . . kc/s (or Mc/s)].	QTX	Will you keep your station open for further communication with me until further notice (or until . . . hours)?	I will keep my station open for further communication with you until further notice (or until . . . hours).
QRY	What is my turn?	Your turn is Number . . . (Relates to communication.)	QUA	Have you news of . . . (call sign)?	Here is news of . . . (call sign).
QRZ	Who is calling me?	You are being called by . . . [on . . . kc/s or Mc/s)].	QUB	Can you give me, in the following order, information concerning: visibility, height of clouds, direction and velocity of ground wind at . . . (place of observation)?	Here is the information requested . . .
QSA	What is the strength of my signals (or those of . . . )?	The strength of your signals (or those of . . . ) is . . . (1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good).	QUC	What is the number (or other indication) of the last message you received from me [or from (call sign)]?	The number (or other indication) of the last message I received from you [or from . . . (call sign)] is . . .
QSB	Are my signals fading?	Your signals are fading.	QUD	Have you received the urgency signal sent by . . . (call sign of mobile station)?	I have received the urgency signal sent by . . . (call sign of mobile station) at . . . hours).
QSD	Is my keying defective?	Your keying is defective.	QUF	Have you received the distress signal sent by . . . (call sign of mobile station)?	I have received the distress signal sent by . . . (call sign of mobile station) at . . . hours.
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.	QUG	Will you be forced to alight (or land)?	I am forced to alight (or land immediately. or I shall be forced to alight (or land) at . . . (position or place).
QSI	What is the charge to be collected per word to . . . including your internal telegraph charge?	The charge to be collected per word to . . . including my internal telegraph charge is . . . francs.	QUH	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is . . . (units).
QSK	Can you hear me between your signals?	I can hear you between my signals.			
QSL	Can you acknowledge receipt?	I am acknowledging receipt.			
QSM	Shall I repeat the last telegram which I sent you, or some previous telegram?	Repeat the last telegram which you sent me [or telegram(s) number(s) . . .].			
QSN	Did you hear me [or . . . (call sign)] on . . . kc/s (or Mc/s)?	I did hear you [or . . . (call sign)] on . . . kc/s (or Mc/s).			
QSO	Can you communicate with . . . direct or by relay?	I can communicate with . . . direct (or by relay through . . .).			
QSP	Will you relay to . . . free of charge?	I will relay to . . . free of charge.			
QSQ	Have you a doctor on board [or is . . . (name of person) on board]?	I have a doctor on board [or . . . name of person) is on board].			
QSU	Shall I send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . )?	Send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . ).			
QSV	Shall I send a series of V's on this frequency [or . . . kc/s (or Mc/s)]?	Send a series of V's on this frequency [or . . . kc/s (or Mc/s)].			
QSW	Will you send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . )?	I am going to send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . . ).			



# QUARTZ CRYSTALS

Fast Service—

## Unconditional Guarantee!

Crystals ground and etched to your specified frequency at the lowest cost in the industry—supplied in popular FT-243 holders, 1/2" pin spacing, .093" pin diameter—also in DC-34 holders, 3/4" pin spacing, pin diameter .156 or FT-171 holders, pin spacing 3/4" with banana plug pins (fits 5-prong tube socket).



In FT-243 holders from  
**1001KC to 2500KC:**  
 .01% tolerance .....\$1.75  
 .005% tolerance .....\$2.50  
**2501KC to 9000KC:**  
 .01% tolerance .....\$1.50  
 .005% tolerance .....\$2.50  
 Also available in MC-7 or FT-171 holders at above prices. (Specify holder wanted.)

## HERMETICALLY SEALED OVERTONE CRYSTALS

Supplied in HC6/U metal holders, pin spacing .486", pin dia. .050"—pin diameter .093" also available. Specify diameter wanted, otherwise .050 supplied.

10 to 30 MC .005 tolerance.....\$3.85 ea.  
 30 to 54 MC .005 tolerance.....\$4.10 ea.  
 55 to 75 MC .005 tolerance.....\$4.25 ea.  
 75 to 90 MC .005 tolerance.....\$5.50 ea.

(Write for quantity prices)

## NOVICE CRYSTALS

80 meter band within 1KC of specified frequency from 3701KC to 749KC in 40 meter band from 7152KC to 7198KC within 1KC of specified frequencies in FT-243 holders..... 99¢  
 ANY AMATEUR BAND CRYSTAL from 3500KC to 8650KC, .05% tolerance..... 99¢  
 (Add 5¢ per crystal for postage & handling.)

## SPECIAL! RADIO CONTROL CRYSTALS

27.255 MC sealed crystals.....\$2.50 ea.

## MARINE FREQUENCY CRYSTALS

.005 Tolerance—available in FT-243 holders, or MC7 (pin spacing 3/4", dia. .125") holders.  
 2009 2182 2670 2977  
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 2174 2638 2961 3193

(Other marine frequencies available at \$2.50 ea.)

Stock crystals in FT-243 holders from 5675KC to 8650KC in 25KC steps 50¢.

FT-241 lattice crystals in all frequencies from 370KC to 540KC 50¢.

200KC Crystals 2.00  
 455KC Crystals 1.00  
 500KC Crystals 1.00  
 1000KC Frequency Standard Crystals 3.50  
 Dual socket for FT-243 crystals .15

Low frequency FT-241 crystals from 880.20KC to 1040.62KC in steps of 1040 cycles 75¢

(Write for complete listing.)

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 W3FLP .....Ralph Garrick.....All bands  
 W3FCP .....} Bill Hammaker.....At the mike  
 W3BEO .....}  
 W3WW .....Paul Keller.....On the net  
 W3YLG .....Joe Griffith .....2 meters  
 W3UMV .....Charlie Reed .....80 CW  
 W3EKO .....Jean Adams .....YL  
 W3WUY .....Dick Amrich .....6 meters  
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Reservations and copy instructions must reach our office on the fifteenth of January, April, July and October for the March, June, September and December issues of the CALLBOOK respectively.

## RADIO AMATEUR CALL BOOK, INC.

4844 FULLERTON AVENUE  
 CHICAGO 39, ILLINOIS, U.S.A.



# WORLD TIME CONVERSION CHART IN HOURS

Greenwich Meridian Time, London, Eng- land.	Central Europe, Ber- lin, Geneva, Stock- holm, Vienna.	Eastern Europe, Ath- ens, Cape Town, Cairo, Moscow.	Arabia, Armenia, Ethiopia, Madagas- car.	Mauritius, Persia, Reunion Island.	Central Russia, Bom- bay, India.	Calcutta, Novosi- birsk Russia, Tibet.	French Indo China. Siam, Sumatra.	Philippine Islands. Perth, Australia.	Central Australia. Tokyo, Japan.	Eastern Australia. Melbourne, Sydney.	New Caledonia. New Zealand.	International Date Line. Fiji Islands.	Norfolk, Alaska. Samoa Islands.	Hawaiian Islands. Midway Islands.	Eastern Alaska. Dawson, Juneau.	Pacific Standard Time, Los Angeles, Seattle.	Mountain Standard Time, Calgary, Denver, Phoenix.	Central Standard Time, Chicago, Costa Rica.	Eastern Standard Time, Montreal, New York, Peru.	Atlantic Standard Time, Argentina, Nova Scotia.	Greenland. Rio de Janeiro, Brazil.	Azores.	Iceland. Canary Islands.
0000	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM
0100	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night
0200	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM
0300	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM
0400	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM
0500	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM
0600	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM
0700	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM
0800	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM
0900	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM
1000	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM
1100	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM
1200	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM
1300	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon
1400	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM
1500	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM
1600	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM
1700	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM
1800	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM
1900	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM
2000	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM
2100	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM
2200	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM
2300	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM

With this chart you can convert standard time in any time zone to GMT or tell what time it is in other parts of the world. To correctly use this chart visualize each horizontal line as a complete circle. From your time zone tracing horizontally to the right (Counter Clockwise) it will be tomorrow when you pass midnight and yesterday when you pass the international date line. To the left (Clockwise) it will be yesterday when you pass midnight and tomorrow when you pass the international date line. There is no change in date when you pass both midnight and the international date line going in one direction. For instance at 8 PM in New York Eastern Standard Time it is 2 AM tomorrow in Berlin, Germany and 11 AM tomorrow in Sydney, Australia. Always trace in the shortest direction from your time zone to find what time it is in any other zone. Copyright 1938 Radio Amateur Call Book, Inc., Chicago, USA.



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ATLANTA, GEORGIA		140	1244	937	697	353	1229	587	554	194	721	1212	739	596	1291	1697	701	426	285	676	456	1936	319	604	668	907	214	424	748	505	666	1592	521	467	1583	2139	2182	543	371
BIRMINGHAM, ALA.	140		1174	1052	776	442	1119	578	618	334	581	1095	670	641	1152	1602	567	433	374	579	325	1802	331	665	659	862	182	312	864	638	783	1456	608	400	1466	2013	2082	661	512
BISMARCK, N. D.	1244	1174		1489	1106	1133	440	734	1014	1359	990	531	506	926	1081	534	1211	881	1529	618	943	1267	965	1838	682	384	1030	1297	1396	1430	1367	1095	1127	779	694	1265	1013	1318	1474
BOSTON, MASS.	937	1052	1489		400	622	1735	851	551	791	1551	1769	1159	613	2072	2024	1605	807	1017	1251	1259	2596	826	1255	857	1123	943	1359	188	471	271	2300	483	1038	2099	2699	2493	393	673
BUFFALO, NEW YORK	697	776	1106	400		344	1335	454	173	623	1198	1370	760	216	1692	1640	1286	435	879	861	913	2198	483	1181	458	731	627	1086	292	947	279	1906	178	662	1699	2300	2117	292	598
CHARLESTON, W. VA.	353	442	1133	622	344		1246	400	217	302	935	1256	673	284	1475	1642	984	262	553	701	642	2054	225	870	461	755	322	754	440	311	365	1733	168	465	1616	2205	2132	253	350
CHEYENNE, WYOMING.	1229	1119	440	1735	1335	1246		891	1199	1390	726	96	583	1125	653	521	947	986	1493	560	813	882	1033	1763	878	642	1032	1131	1604	1556	1556	663	1298	795	371	967	973	1477	1540
CHICAGO, ILLINOIS	587	578	734	851	454	400	891		308	652	803	920	309	238	1252	1248	940	165	863	414	552	1745	269	1188	81	355	397	833	713	699	666	1453	410	262	1260	1858	1737	597	745
CLEVELAND, OHIO	554	618	1014	551	173	217	1199	308		518	1025	1227	617	90	1525	1541	1114	263	770	700	740	2049	311	1087	335	630	459	924	405	432	360	1749	115	492	1568	2166	2026	306	541
COLUMBIA, S. C.	194	334	1359	791	623	302	1390	652	518		914	1380	863	585	1484	1837	891	489	256	830	644	2123	395	569	726	998	358	599	605	332	523	1781	448	603	1751	2317	2326	405	178
DALLAS, TEXAS	721	581	990	1551	1198	935	726	803	1025	914		663	632	999	572	1247	225	763	908	451	293	1240	726	1111	857	862	617	443	1374	1196	1299	887	1070	547	999	1483	1681	1185	1091
DENVER, COLORADO	1212	1095	531	1769	1370	1256	96	920	1227	1380	663		610	1156	557	591	879	1000	1467	558	780	831	1038	1726	914	700	1023	1082	1631	1566	1579	586	1320	796	371	949	1021	1494	1537
DES MOINES, IOWA	739	670	506	1159	760	673	583	309	617	863	632	610		546	983	977	821	411	1023	180	478	1438	476	1333	309	235	525	827	1022	983	973	1155	715	273	953	1550	1467	896	993
DETROIT, MICHIGAN	596	641	926	613	216	284	1125	238	90	585	999	1156	546		1479	1455	1105	240	831	645	723	1983	316	1152	252	543	470	939	482	522	443	1690	205	455	1492	2091	1938	396	623
EL PASO, TEXAS	1291	1152	1081	2072	1692	1475	653	1252	1525	1484	572	557	983	1479		1065	676	1264	1473	839	847	701	1254	1643	1279	1157	1169	983	1905	1755	1836	346	1590	1034	689	995	1376	1728	1661
HELENA, MONTANA	1697	1602	534	2024	1640	1642	521	1248	1541	1837	1247	591	977	1455	1065		1467	1382	1973	1023	1315	924	1453	2260	1206	912	1488	1646	1929	1947	1897	907	1652	1236	403	807	490	1842	1969
HOUSTON, TEXAS	701	567	1211	1605	1286	984	947	940	1114	891	225	879	821	1105	676	1467		865	821	644	388	1374	803	968	1005	1056	665	318	1420	1204	1341	1017	1137	679	1200	1645	1891	1220	1066
INDIANAPOLIS, IND.	426	433	881	807	435	262	986	165	263	489	763	1000	411	240	1264	1382	865		699	453	483	1809	107	1024	243	511	251	712	646	573	585	1499	330	231	1356	1949	1872	494	593
JACKSONVILLE, FLA.	285	374	1529	1017	879	553	1493	863	770	256	908	1467	1023	831	1473	1973	821	699		950	690	2147	594	326	942	1191	499	504	838	546	758	1794	703	751	1837	2374	2455	647	346
KANSAS CITY, MISSOURI	676	579	618	1251	861	701	560	414	700	830	451	558	180	645	839	1023	644	453	950		325	1356	480	1241	443	413	473	680	1097	1009	1038	1049	781	238	925	1506	1506	945	981
LITTLE ROCK, ARK.	456	325	943	1259	913	642	813	552	740	644	293	780	478	723	847	1315	388	483	690	325		1480	435	949	618	708	325	355	1081	909	1007	1137	779	291	1148	1688	1785	892	818
LOS ANGELES, CALIF.	1936	1802	1267	2596	2198	2054	882	1745	2049	2123	1240	831	1438	1983	701	924	1374	1809	2147	1356	1480		1829	2339	1744	1524	1780	1673	2451	2355	2394	357	2136	1589	579	347	959	2300	2294
LOUISVILLE, KY.	319	331	965	826	483	225	1033	269	311	395	726	1038	476	316	1254	1453	803	107	594	480	435	1829		919	349	605	154	623	652	529	582	1508	344	242	1402	1986	1943	476	516
MIAMI, FLORIDA	604	665	1838	1255	1181	870	1763	1188	1087	569	1111	1726	1333	1152	1643	2260	968	1024	326	1241	949	2339	919		1267	1511	815	669	1092	797	1019	1982	1010	1061	2089	2594	2734	923	598
MILWAUKEE, WIS.	668	659	682	857	458	461	878	81	335	726	357	914	309	252	1279	1206	1005	243	942	443	618	1744	349	1267		299	478	910	733	749	694	1464	446	327	1242	1842	1692	637	810
MINNEAPOLIS, MINN.	907	862	384	1123	731	755	642	355	630	998	862	700	235	543	1157	912	1056	511	1191	413	708	1524	605	1511	299		697	1051	1018	1047	985	1280	743	466	987	1584	1395	934	1100
NASHVILLE, TENN.	214	182	1030	943	627	322	1032	397	459	358	617	1023	525	470	1169	1488	665	251	499	473	325	1780	154	815	478	697		469	761	586	685	1446	472	254	1393	1963	1975	569	517
NEW ORLEANS, LA.	424	312	1297	1359	1086	754	1131	833	924	599	443	1082	827	939	983	1646	318	712	504	680	355	1673	623	669	910	1051	469		1171	926	1089	1316	919	598	1434	1926	2101	966	769
NEW YORK, N. Y.	748	864	1396	188	292	440	1604	713	405	605	1374	1631	1022	482	1905	1929	1420	646	838	1097	1081	2451	652	1092	733	1018	761	1171		296	83	2145	317	875	1972	2571	2408	205	499
NORFOLK, VA.	505	638	1430	471	438	311	1556	699	432	332	1196	1566	983	522	1755	1947	1204	573	546	1009	909	2355	529	797	749	1047	586	926	296		222	2028	318	771	1927	2515	2436	146	203
PHILADELPHIA, PA.	666	783	1367	271	279	365	1556	666	360	523	1299	1579	973	443	1836	1897	1341	585	758	1038	1007	2394	582	1019	694	985	685	1089	83	222		2083	259	811	1925	2523	2380	123	423
PHOENIX, ARIZONA	1592	1456	1095	2300	1906	1733	663	1453	1749	1781	887	586	1155	1690	346	907	1017	1499	1794	1049	1137	357	1508	1982	1464	1280	1446	1316	2145	2028	2083		1828	1272	504	653	1114	1983	1954
PITTSBURGH, PA.	521	608	1127	483	178	168	1298	410	115	448	1070	1320	715	205	1590	1652	1137	330	703	781	779	2136	344	1010	446	743	472	919	317	318	259	1828		559	1668	2264	2138	192	442
ST. LOUIS, MO.	467	400	779	1038	662	465	795	262	492	603	547	796	273	455	1034	1236	679	231	751	238	291	1589	242	1061	327	466	254	598	875	771	811	1272	559		1162	1744	1724	712	746
SALT LAKE CITY, UTAH	1583	1466	694	2099	1699	1616	371	1260	1568	1751	999	371	953	1492	689	403	1200	1356	1837	925	1148	579	1402	2089	1242	987	1393	1434	1972	1927	1925	504	1668	1162					



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applications

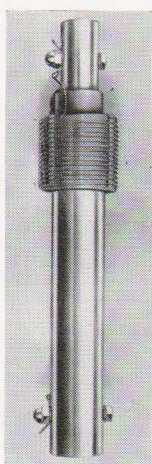
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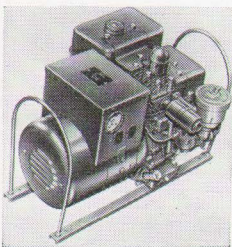
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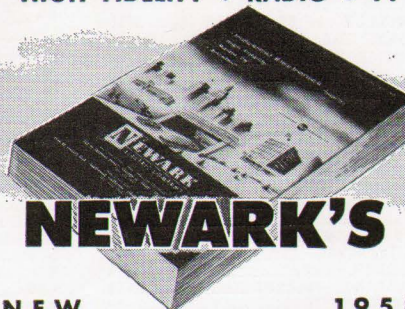
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# GREAT CIRCLE BEARINGS

## CENTERED ON

# LOS ANGELES, CALIFORNIA

The table below gives the great circle bearings in degrees from Los Angeles, California to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is shown. These bearings were compiled from information furnished by the U. S. Coast and Geodetic Survey.

Prefix	Country	Bearing	Prefix	Country	Bearing	Prefix	Country	Bearing
AC3	SIKKIM	334	KM6	MIDWAY ISLAND	281	VK6	Perth	256
AC4	TIBET, Lhasa	333	KP4	PUERTO RICO	94	VK7	TASMANIA, Hobart	234
AG2	TRIESTE	30	KP6	PALMYRA ISLAND	245	VK9	NORFOLK ISLAND	235
AP	PAKISTAN, Karachi	354	KR6	OKINAWA ISLAND	304		PAPUA TERRITORY, Port Moresby	267
C	CHINA, Chungking	322	KS4	SWAN ISLAND	110	VO	NEWFOUNDLAND, St. John's	52
	Pekin	322	KS6	SAMOA	236	VPI	BRITISH HONDURAS	113
	Shanghai	312	KV4	VIRGIN ISLANDS	94	VP2	LEEWARD and WINDWARD ISLANDS	95
CE	CHILE, Santiago	141	KW6	WAKE ISLAND	278	VP3	BRITISH GUIANA, Georgetown	100
CM	CUBA, Havana	100	KX6	MARSHALL ISLANDS	265	VP4	TRINIDAD	99
CN2	TANGIER ZONE	48	KZ5	CANAL ZONE	105	VP5	JAMAICA	102
CN8	FRENCH MOROCCO, Casablanca	51	LA	NORWAY, Oslo	24	VP6	BARBADOS ISLANDS	95
CP	BOLIVIA, La Paz	128	LI	LIBYA, Tripoli	65	VP7	BAHAMAS ISLANDS	92
CR4	CAPE VERDE ISLANDS	74	LU	ARGENTINA, Buenos Aires	135	VP8	FALKLAND ISLANDS	135
CR5	PORTUGUESE GUINEA	73	LX	LUXEMBOURG	33		South Georgia Island	140
CR6	ANGOLA, Nova Lisboa	75	LZ	BULGARIA, Sofia	28		South Orkney Islands	130
CR7	MOZAMBIQUE, Lourenco Marques	81	MB9	AUSTRIA, Vienna	30	VP9	BERMUDA	77
	Mozambique	52	MD1	CIRENAICA	36	VQ1	ZANZIBAR	42
CR8	GOA	346	MD2	TRIPOLITANIA	40	VQ2	NORTHERN RHODESIA, Lusaka	67
CR9	MACAU	312	MD3	ERITREA, Asmara	28	VQ3	TANGANYIKA, Dar-Es-Salaam	44
CR10	TIMOR ISLAND	277	MD4	BRITISH SOMALILAND	23	VQ4	KENYA, Nairobi	40
CT1	PORTUGAL, Lisbon	48	MD5	SUEZ CANAL ZONE	27	VQ5	UGANDA	44
CT2	AZORES ISLAND	55	MD6	IRAQ, Baghdad	16	VQ6	BRITISH SOMALILAND	21
CT3	MADERIA ISLANDS	57	MF2	TRIESTE (British)	32	VQ8	CHAGOS ISLANDS	339
CX	URUGUAY, Montevideo	134	MI3	ERITREA, Asmara	28		Mauritius	15
DL	GERMANY, Berlin	27	MP4	BAHRAIN ISLANDS and OMAN	12	VQ9	SEYCHELLES	11
DU	PHILIPPINE ISLANDS, Manila	300	OA	PERU, Lima	132	VR1	GILBERT ISLANDS	259
EA	SPAIN, Madrid	44	OD5	LEBANON, Beyrouth	23	VR2	FIJI ISLANDS	240
EA6	BALEARIC ISLANDS	41	OH	FINLAND, Helsinki	18	VR3	FANNING ISLAND	241
EA8	CANARY ISLANDS	60	OE	AUSTRIA, Vienna	30	VR4	SOLOMON ISLAND	260
EA9	SPANISH MOROCCO	50	OK	CZECHOSLOVAKIA, Prague	28	VR5	TONGA ISLANDS	234
EI	IRELAND, Dublin	35	ON	BELGIUM, Brussels	33	VR6	PITCAIRN ISLAND	183
EL	LIBERIA, Monrovia	74	OQ5	BELGIAN CONGO, Elisabethville	63	VS	MALAYA, Singapore	303
EP	IRAN, Tehran	9		Leopoldville	67	VS4	BRITISH NORTH BORNEO	295
ET	ETHIOPIA, Addis Ababa	31		Stanleyville	54	VS5	BRUNEI and SARAWAK	296
F	FRANCE, Paris	35	OX	GREENLAND, Godthaab	32	VS6	HONG KONG	310
FA	ALGERIA, Algiers	43	OY	FAEROES ISLANDS	28	VS7	CEYLON	332
FBB	MADAGASCAR, Antsirana	31	OZ	DENMARK, Copenhagen	26	VSS	ADEN, Aden	20
	Tananarive	43	PA	NETHERLANDS, Amsterdam	31	VU	INDIA, Bombay	347
FG	CORSICA	36	PK	JAVA, Batavia	294		Calcutta	332
FDB	TOGOLAND	64	PK4	SUMATRA	304		Delhi	345
FEB	FRENCH CAMEROONS	61	PK5	BORNEO	294	VU4	LACCADIVE ISLANDS	347
FFB	FRENCH WEST AFRICA, Dakar	72	PK6	CELEBES ISLAND	286	VU5	ANDAMAN ISLANDS	322
FG8	GAUDELOUPE	95	PK7	NETHERLAND NEW GUINEA	275	XE	MEXICO, Mexico City	126
FIB	FRENCH INDO CHINA, Saigon	309	PX	ANDORRA	40	XZ	BURMA, Rangoon	322
FK8	NEW CALEDONIA, Noumea	257	PY	BRAZIL, Natal	99	YA	AFGHANISTAN, Kandahar	356
FL8	FRENCH SOMALILAND, Djibouti	26		Rio de Janeiro	117	YI	IRAQ, Baghdad	15
FMB	MARTINIQUE	96	PZ	SURINAM, (Netherland Guiana)	101	YJ	NEW HEBRIDES	244
FMB	FRENCH OCEANIA, Tahiti	214	SM	SWEDEN, Stockholm	21	YK	SYRIA	22
FMB	MIQUELON and ST. PIERRE IS.	55	SP	POLAND, Warsaw	24	YN	NICARAGUA, Managua	119
FQ8	FRENCH EQUATORIAL AFRICA	57	ST	ANGLO-EGYPTIAN SUDAN, Khartoum	34	YO	ROMANIA, Bucharest	24
FR8	REUNION ISLAND	26	SU	Egypt, Cairo	29	YS	SALVADOR, San Salvador	120
FT4	TUNISIA, Tunis	39	SV	GREECE, Athens	27	YT	YUGOSLAVIA, Belgrade	28
FUB	NEW HEBRIDES	245	SV5	DODECANESE ISLANDS	27	YV	VENEZUELA, Caracas	104
FY8	FRENCH GUIANA, Cayenne	100	TA	TURKEY, Ankara	22	ZA	ALBANIA, Tirana	30
G	ENGLAND, London	34	TF	ICELAND, Reykjavik	29	ZB1	MALTA	37
GG	CHANNEL ISLANDS	35	TG	GUATEMALA, Guatemala City	121	ZB2	GIBRALTAR	48
GD	ISLE OF MAN	33	TI	COSTA RICA	119	ZC1	TRANSJORDAN	24
GM	NORTHERN IRELAND, Belfast	34	TR	LIBYA, Tripoli	65	ZC2	COCOS ISLANDS	293
GW	SCOTLAND, Glasgow	32	TT	TANNU TUVA, Kyzyl Khot	340	ZC3	CHRISTMAS ISLAND	289
HA	WALES	35	U	SOVIET UNION, Moscow	13	ZC4	CYPRUS	23
HA	HUNGARY, Budapest	28	UB5	UKRAINE	14	ZD1	SIERRA LEONE, Freetown	74
HB	SWITZERLAND, Bern	34	UC5	WHITE RUSSIA	20	ZD2	NIGERIA, Lagos	65
HC	ECUADOR, Quito	124	UD6	AZERBAIJAN	13	ZD3	GAMBIA	73
HCB	GALAPAGOS ISLANDS	138	UF6	GEORGIA	13	ZD4	GOLD COAST, Accra	69
HEI	LEICHTENSTEIN	32	UG6	ARMENIA	13	ZD6	NYASALAND	60
HN	HAITI, Port-au-Prince	98	UH8	TURKOMAN	2	ZD7	ST. HELENA	93
HI	DOMINICAN REPUBLIC	96	UI8	UZBEK	355	ZD8	ASENCION ISLAND	90
HK	COLOMBIA, Bogota	116	UJ8	TADZHIK	353	ZD9	TRISTAN da CUNHA	117
HLI	KOREA, Seoul	312	UL7	KAZAKH	358	ZE	SOUTHERN RHODESIA, Salisbury	69
HP	PANAMA	105	UM8	KIRGHIZ	351	ZK1	OOK ISLANDS	224
HR	HONDURAS, Tegucigalpa	103	UN1	KARELO-FINNISH REPUBLIC	14	ZK2	NIUE	231
HS	SIAM, Bangkok	315	UO5	MOLDAVIA	23	ZL1	NEW ZEALAND, Auckland	228
HV	VATICAN CITY	34	UP	LITHUANIA	21	ZL2	Wellington	224
HZ	SAUDI ARABIA, Mecca	23	UQ	LATVIA	20	ZL3	Christchurch	223
I	ITALY, Rome	34	UR	ESTONIA	18	ZL4	Dunedin	222
IS	SARDINIA	38	VE1	CANADA, Halifax	59	ZM6	SAMOA (British)	236
JA	JAPAN, Tokyo	306	VE2	Montreal	58	ZP	PARAGUAY, Asuncion	127
KB6	BAKER ISLAND	250	VE3	Toronto	60	ZS	UNION of SOUTH AFRICA, Capetown	102
KCB	CAROLINE ISLANDS	218	VE4	Winnipeg	39		Durban	90
KCB	GUANTANAMO BAY, Cuba	98	VE5	Saskatoon	21		Johannesburg	84
KCB	GUAM	283	VE6	Edmonton	8	ZS3	SOUTH WEST AFRICA, Windhoek	87
KGB1	IWO JIMA ISLAND	296	VE7	Vancouver	348	ZST	SWAZILAND	84
KGB5	SAIPAN ISLAND	284	VE8	Fort Nelson	354	ZS8	BASUTOLAND	92
KGB7	TINIAN ISLAND	284	VK1	HEARD ISLAND	200	ZS9	BECHUANALAND	85
KH6	HAWAIIAN ISLANDS, Honolulu	260	VK2	AUSTRALIA, Sydney	241	3A2	MONACO	35
KJ6	JOHNSTON ISLAND	264	VK3	Melbourne	240	3V8	TUNISIA, Tunis	39
KL7	ALASKA, Anchorage	333	VK4	Brisbane	246	4X4	ISRAEL	24
	Fairbanks	339	VK5	Darwin	270	5A2	LIBYA	39
						9S4	SAARLAND	32



# ARRL Phonetic Alphabet

A	ADAM
B	BAKER
C	CHARLIE
D	DAVID
E	EDWARD
F	FRANK
G	GEORGE
H	HENRY
I	IDA
J	JOHN
K	KING
L	LEWIS
M	MARY
N	NANCY
O	OTTO
P	PETER
Q	QUEEN
R	ROBERT
S	SUSAN
T	THOMAS
U	UNION
V	VICTOR
W	WILLIAM
X	X-RAY
Y	YOUNG
Z	ZEBRA

## ON GOOD PHONE OPERATING

1. Listen much . . . with care. Avoid distractions in your operating room. Tune the band well after each call.
2. Time your calls; monitor your own frequency. Call only when a station is free.
3. Make short calls, with breaks to listen. Speak clearly, at a steady, modest rate. Three short calls are better than one long one.
4. Use push-to-talk technique . . . speak near the mike. Watch the modulation indicator. Keep local background noise at a minimum.
5. Make notes. Avoid missing points for comment. Jot down topics to avoid repeats.
6. Talk in connected thoughts and phrases. Notes will help avoid mixing up subjects. Push-to-talk technique will keep brother amateurs from calling you a monologist.
7. Speak naturally. QSOs need not be cut and dried. Make them interesting. Avoid exhibitionism. Use proper operating form to promote efficiency in communication and add respect and prestige for your station.

Use of this standard list is recommended by ARRL. Haphazard selection of words often results in confusion. A degree of uniformity in use of phonetic words reflects favorably on your individual operating, and on the whole amateur service.

ARRL Communications Department.

# Bliley

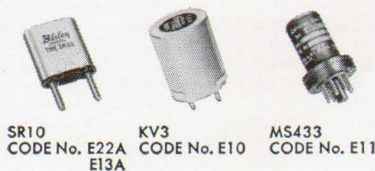
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E17	AX2	1800-1825 kc; 1875-1900 kc; 1900-1925 kc; 1975-2000 kc	*	3.75
E18	AX2	3500-4000 kc	*	2.95
E19	AX2	7000-7425 kc; 8000-9000 kc	*	2.95
*NOTE: We will supply to integral spot frequencies (no fractions) as ordered; calibration $\pm 500$ cycles in factory test oscillator.				
E20	AX2	14-14.5 mc	$\pm 10$ kc	3.95
SPOT FREQUENCIES FOR NET OPERATION				
E22	MC9	3 mc-12 mc experimental freq.	$\pm .03\%$	6.50
E22A	SR10	12 mc-27.5 mc experimental freq.	$\pm .03\%$	8.50
CRYSTAL FILTERS CITIZEN'S SERVICE STANDARD FREQUENCIES				
E10	KV3	reference frequency 100 kc	$\pm .005\%$	\$8.50
E11	MS433	reference frequency 1000 kc	$\pm .005\%$	17.00
E11A	MC9	marker frequency 1000 kc	$\pm .05\%$	8.00
E13	MC9	13.6275 mc (multiplier to 27.255 mc) CITIZEN'S RADIO SERVICE (CLASS "C")	$\pm .04\%$	5.50
E13A	SR10	27.255 mc (3rd overtone crystal) CITIZEN'S RADIO SERVICE (CLASS "C")	$\pm .04\%$	5.50
E14	CF3	455 kc—456 kc— 465 kc Single Signal Filters	$\pm 5$ kc	5.00
E15	CF6	455 kc—456 kc— 465 kc Single Signal Filters	$\pm 5$ kc	4.50



SR10 CODE No. E22A E13A  
KV3 CODE No. E10  
MS433 CODE No. E11



MC9 CODE No. E11A E13 E22  
CF3 CODE No. E14  
CF6 CODE No. E15  
AX2 CODE No. E17 thru 20

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## Federal Communications Commission Examination Points

Examinations for commercial and amateur operator licenses are conducted at Washington, D. C., each week except Saturday, and at each radio district office of the Commission on the days designated by the Engineer in Charge of the office. Specific dates should be obtained from the Engineer in Charge. The following list gives the address of each field office of the Commission.

Radio District	Address of the Engineer in Charge
1	1600 Customhouse, Boston 9, Mass.
2	748 Federal Bldg., 641 Washington St., New York 14, N.Y.
3	Room 1005, New U. S. Customhouse, 2nd & Chestnut Sts., Philadelphia 6, Pa.
4	508 Old Town Bank Bldg., Gay St. & Falsway, Baltimore 2, Md.
5	Room 402, New Post Office Bldg., Norfolk 10, Va.
6	411 Federal Annex, Atlanta 3, Georgia. Sub-office: P. O. Box 77, 214-218 P. O. Bldg., Savannah, Georgia.
7	P. O. Box 150, 312 Federal Bldg., Miami 1, Florida. Sub-office: 409-410 P. O. Bldg., Tampa 2, Florida.
8	400 Audubon Bldg., New Orleans 16, La. Sub-office: 324 U. S. Court House, Mobile 10, Alabama.
9	324 U. S. Appraisers Bldg., 7300 Wingate Ave., Houston 11, Texas. Sub-office: 329 P. O. Bldg., Beaumont, Texas.
10	P. O. Box 5238, 500 U. S. Terminal Annex, Dallas 2, Texas.
11	539 U. S. Post Office Bldg. & Courthouse Bldg., Temple & Spring Sts., Los Angeles 12, Calif. Sub-office: 15-C U. S. Customhouse & Courthouse Bldg., Union & F Sts., San Diego 1, Calif.
12	328 Customhouse, San Francisco 26, Calif.
13	917 S. W. Oak Street, Portland, Oregon.
14	808 Federal Office Bldg., Seattle 4, Wash.
15	521 Customhouse, Denver 2, Colorado.
16	208 Federal Courts Building, St. Paul 2, Minnesota.
17	3200 Fidelity Bldg., Kansas City 6E, Missouri.
18	826 U. S. Courthouse Bldg., Chicago 4, Ill.
19	1029 New Federal Bldg., Detroit 26, Mich.
20	328 Post Office Bldg., Ellicott & Swan Sts., Buffalo 3, N. Y.
21	609 Stangenwald Bldg., Honolulu 1, T. H.
22	P. O. Box 2987, 322-323 Federal Bldg., San Juan 13, P. R. Sub-office: P. O. Box 644, Anchorage, Alaska.
23	P. O. Box 1421, 7-8 Shattuck Bldg., Juneau, Alaska.



# CHICAGO, ILLINOIS

The table below shows the great circle bearing in degrees from the point as indicated above to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is given. These bearings were compiled from information supplied by the U.S. Coast and Geodetic Survey.

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AG2	TRIESTE	48	KP6	PALMYRA ISLAND	264	VK9	NORFOLK ISLAND	254
AP	PAKISTAN, Karachi	25	KR6	OKINAWA ISLAND	327		PAPUA TERRITORY, Port Moresby	287
C	CHINA, Chungking	348	KS4	SWAN ISLAND	173	VO	NEWFOUNDLAND, St. John's	65
	Pekin	342	KS6	SAMOA	255	VP1	BRITISH HONDURAS	181
	Shanghai	335	KV4	VIRGIN ISLANDS	133	VP2	LEEWARD and WINDWARD ISLANDS	133
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CM	CUBA, Havana	165	KX6	MARSHALL ISLANDS	285	VP4	TRINIDAD	135
CN2	TANGIER ZONE	66	KZ5	CANAL ZONE	168	VP5	JAMAICA	162
CN8	FRENCH MOROCCO, Casablanca	69	LA	NORWAY, Oslo	36	VP6	BARBADOS ISLANDS	131
CP	BOLIVIA, La Paz	158	LI	LIBYA, Tripoli	58	VP7	BAHAMAS ISLANDS	150
CR4	CAPE VERDE ISLANDS	96	LU	ARGENTINA, Buenos Aires	156	VP8	FALKLAND ISLANDS	155
CR5	PORTUGUESE GUINEA	93	LX	LUXEMBOURG	48		South Georgia Island	142
CR6	ANGOLA, Nova Lisboa	92	LZ	BULGARIA, Sofia	46		South Orkney Islands	140
CR7	MOZAMBIQUE, Lourenco Marques	92	MB9	AUSTRIA, Vienna	45	VP9	BERMUDA	112
	Mocambique	75	MD1	CIRENAICA	54	VQ1	ZANZIBAR	69
CR8	GOA	22	MD2	TRIPOLITANIA	59	VQ2	NORTHERN RHODESIA, Lusaka	86
CR9	MACAU	340	MD3	ERITREA, Asmara	53	VQ3	TANGANYIKA, Dar-Es-Salaam	70
CR10	TIMOR ISLAND	319	MD4	BRITISH SOMALILAND	51	VQ4	KENYA, Nairobi	68
CT1	PORTUGAL, Lisbon	65	MD5	SUEZ CANAL ZONE	49	VQ5	UGANDA	70
CT2	AZORES	74	MD6	IRAQ, Baghdad	39	VQ6	BRITISH SOMALILAND	52
CT3	MADERIA ISLANDS	75	MF2	TRIESTE (British)	48	VQ8	CHAGOS ISLANDS	34
CTX	URUGUAY, Montevideo	154	MI3	ERITREA, Asmara	53		Mauritius	66
DL	GERMANY, Berlin	42	MP4	BAHREIN ISLANDS and OMAN	38	VQ9	SEYCHELLES	53
DU	PHILIPPINE ISLANDS, Manila	328	OA	PERU, Lima	167	VR1	GILBERT ISLANDS	51
EA	SPAIN, Madrid	60	OD5	LEBANON, Beyrouth	44	VR2	FUJI ISLANDS	259
EA6	BALEARIC ISLANDS	58	OH	FINLAND, Helsinki	31	VR3	FANNING ISLAND	262
EA8	CANARY ISLANDS	79	OE	AUSTRIA, Vienna	45	VR4	SOLOMON ISLANDS	280
EA9	SPANISH MOROCCO	67	OK	CZECHOSLOVAKIA, Prague	44	VR5	TONGA ISLANDS	253
EI	IRELAND, Dublin	48	ON	BELGIUM, Brussels	47	VR6	PITCAIRN ISLAND	220
EL	LIBERIA, Monrovia	94	OQ5	BELGIAN CONGO, Elisabethville	82	VS	MALAYA, Singapore	343
EP	IRAN, Tehran	32		Leopoldville	85	VS4	BRITISH NORTH BORNEO	327
ET	ETHIOPIA, Addis Ababa	58	OX	GREENLAND, Godthaab	31	VS5	BRUNEI and SARAWAK	330
F	FRANCE, Paris	50	OY	FAEROES ISLANDS	38	VS6	HONG KONG	338
FA	ALGERIA, Algiers	61	OZ	DENMARK, Copenhagen	39	VS7	CEYLON	16
FB8	MADAGASCAR, Tananarive	74	PA	NETHERLANDS, Amsterdam	45	VS9	ADEN, Aden	49
FC	CORSICA	53	PK	JAYA, Batavia	335	VU	INDIA, Bombay	22
FD8	TOGOLAND	85	PK4	SUMATRA	347		Calcutta	15
FE8	FRENCH CAMEROONS	80	PK5	BORNEO	329		Delhi	21
FF8	FRENCH WEST AFRICA, Dakar	92	PK6	CELEBES ISLAND	320	VU4	LACCADIVE ISLANDS	25
FG8	GAUDELLOUPE	132	PK7	NETHERLAND NEW GUINEA	299	VU5	ANDAMAN ISLANDS	359
FI8	FRENCH INDO CHINA, Saigon	343	PX	ANDORRA	56	XE	MEXICO, Mexico City	207
FK8	NEW CALEDONIA, Noumea	264	PY	BRAZIL, Natal	122	XZ	BURMA, Rangoon	355
FL8	FRENCH SOMALILAND, Djibouti	53		Rio de Janeiro	138	YA	AFGHANISTAN, Kandahar	23
FM8	MARTINIQUE	132	PZ	SURINAM, (Netherland Guiana)	133	YI	IRAQ, Baghdad	38
FO8	FRENCH OCEANIA, Tahiti	239	SM	SWEDEN, Stockholm	34	YJ	NEW HEBRIDES	266
FP8	MIQUELON and St. PIERRE IS.	68	SP	POLAND, Warsaw	39	YK	SYRIA	42
FQ8	FRENCH EQUATORIAL AFRICA	77	ST	ANGLO-EGYPTIAN SUDAN, Khartoum	58	YN	NICARAGUA, Managua	178
FR8	REUNION ISLAND	65	SU	Egypt, Cairo	49	YO	ROMANIA, Bucharest	43
FT4	TUNISIA, Tunis	57	SV	GREECE, Athens	49	YS	SALVADOR, San Salvador	182
FU8	NEW HEBRIDES	264	SV5	DODECANESE ISLANDS	49	YT	YUGOSLAVIA, Belgrade	46
FY8	FRENCH GUIANA, Cayenne	130	TA	TURKEY, Ankara	42	YV	VENEZUELA, Caracas	145
G	ENGLAND, London	48	TF	ICELAND, Reykjavik	36	ZA	ALBANIA, Tirana	49
GC	CHANNEL ISLANDS	50	TG	GUATEMALA, Guatemala City	186	ZB1	MALTA	56
GD	ISLE OF MAN	47	TI	COSTA RICA	173	ZB2	GIBRALTAR	67
GI	NORTHERN IRELAND, Belfast	47	TR	LIBYA, Tripoli	59	ZC1	TRANSJORDAN	47
GM	SCOTLAND, Glasgow	45	TT	TANNU TUVA, Kyzyl Khot	358	ZC2	COCOS ISLANDS	350
GW	WALES	49	U	SOVIET UNION, Moscow	29	ZC3	CHRISTMAS ISLAND	335
HA	HUNGARY, Budapest	44	UB5	UKRAINE	36	ZC4	CYPRUS	44
HB	SWITZERLAND, Bern	49	UC5	WHITE RUSSIA	35	ZD1	SIERRA LEONE, Freetown	94
HC	ECUADOR, Quito	167	UD6	AZERBAIJAN	31	ZD2	NIGERIA, Lagos	84
HCB	GALAPAGOS ISLANDS	185	UF6	GEORGIA	36	ZD3	GAMBIA	92
HE1	LEICHTENSTEIN	49	UG6	ARMENIA	37	ZD4	GOLD COAST, Accra	88
HH	HAITI, Port-au-Prince	145	UH8	TURKOMAN	26	ZD6	NYASALAND	81
HI	DOMINICAN REPUBLIC	139	UI8	UZBEK	19	ZD7	ST. HELENA	109
HK	COLOMBIA, Bogota	158	UJ8	TADZHIK	17	ZD8	ASENCION ISLAND	107
HL1	KOREA, Seoul	334	UL7	KAZAKH	14	ZD9	TRISTAN da CUNHA	112
HP	PANAMA	168	UM8	KIRGHIZ	12	ZE	SOUTHERN RHODESIA, Salisbury	86
HR	HONDURAS, Tegucigalpa	181	UN1	KARELO-FINNISH REPUBLIC	29	ZK1	COOK ISLANDS	246
HS	SIAM, Bangkok	351	UO5	MOLDAVIA	39	ZK2	NIUE	251
HV	VATICAN CITY	51	UP	LITHUANIA	35	ZL1	NEW ZEALAND, Auckland	245
HZ	SAUDI ARABIA, Mecca	49	UQ	LATVIA	34	ZL2	Wellington	240
I	ITALY, Rome	51	UR	ESTONIA	32	ZL3	Christchurch	238
IS	SARDINIA	55	VE1	CANADA, Halifax	73	ZL4	Dunedin	237
JA	JAPAN, Tokyo	323	VE2	Montreal	66	ZM6	SAMOA (British)	255
KB6	BAKER ISLAND	270	VE3	Toronto	71	ZP	PARAGUAY, Asuncion	152
KC6	CAROLINE ISLANDS	297	VE4	Winnipeg	324	ZS	UNION OF SOUTH AFRICA, Capetown	108
KG4	GUANTANAMO BAY, Cuba	150	VE5	Saskatoon	317		Durban	98
KG6	GUAM	306	VE6	Edmonton	315		Johannesburg	95
KG6I	IWO JIMA ISLAND	317	VE7	Vancouver	300	ZS3	SOUTH WEST AFRICA, Windhoek	99
KG6S	SAIPAN ISLAND	307	VE8	Fort Nelson	321	ZS7	SWAZILAND	94
KG6T	TINIAN ISLAND	307	VK1	HEARD ISLAND	137	ZS8	BASUTOLAND	99
KH6	HAWAIIAN ISLANDS, Honolulu	274	VK2	AUSTRALIA, Sydney	260	ZS9	BECHUANALAND	94
KJ6	JOHNSTON ISLAND	278	VK3	Melbourne	257	3A2	MONACO	53
KL7	ALASKA, Anchorage	320	VK4	Brisbane	266	3V8	TUNISIA, Tunis	57
	Fairbanks	226	VK5	Darwin	298	4X4	ISRAEL	47
						5A2	LIBYA	57
						9S4	SAARLAND	48



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**Transformers  
... for  
dependable  
performance in modern  
transmitter circuits**

**PLATE TRANSFORMERS**

Pri. 115/230 Volts, 50/60 cycles

These sturdy plate transformers and matching filter reactors have been built particularly for amateur use. They are conservatively rated and are constructed for cooler operation under both CCS and ICAS conditions. The smaller units are sealed in one-piece drawn steel cases. The larger transformers have heavy-duty cast frames and formed steel shields bolted to the core.



Catalog No.	Max. Pri. VA	Secondary A-C Load Volts	D-C Volts after filter	D-C Volts CCS	Ma. ICAS	Mtg. Type
P-45	185	675-0-675 575-0-575	500 400	250	325	S
P-67	250	900-0-900 735-0-735	750 600	250	325	S
P-107	310	1150-0-1150 870-0-870	1000 750	250	350	FS
P-1240	360	1425-0-1425* 600-0-600	1250 400	150 200	200 260	S
P-1512	550	1710-0-1710 1430-0-1430	1500 1250	300	425	FS
P-2520	915	2820-0-2820 2260-0-2260	2500 2000	300	425	FS
P-2126	1600	2900-0-2900 2320-0-2320	2600 2100	500	700	†
P-3025	1850	3450-0-3450 2850-0-2850	3000 2500	500	700	FS
P-4353	3050	4600-0-4600 4050-0-4050 3400-0-3400	4000 3500 3000	600	800	FS

\*Both secondaries may be rectified simultaneously. †Similar to FS, with heavy gauge steel frames.

**FILTER REACTORS**

Catalog No.	Inductance in Henries	Max. D-C Ma.	D-C Resistance, Ohms	Insulation Volts RMS	Mtg. Type
R-67	6	700	35	10,000	FS
R-105	10	500	40	9,000	FS
R-65	6	500	35	9,000	FS
R-103	10	300	40	7,500	SX
R-63	6	300	35	7,500	SX

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listing complete electrical and physical specifications on CHICAGO's famous "sealed-in-steel" line of over 400 transformers for amateur, military, industrial, broadcast and many other applications... or get it from your CHICAGO distributor.



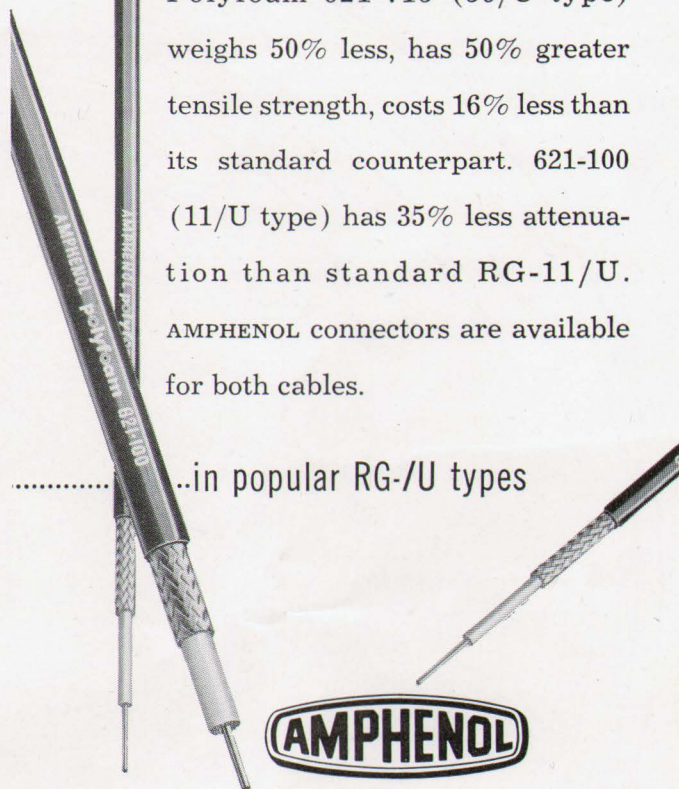
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New AMPHENOL Polyfoam cables are available in RG-59/U and RG-11/U types—featuring a revolutionary cellular polyethylene dielectric. Polyfoam 621-715 (59/U type) weighs 50% less, has 50% greater tensile strength, costs 16% less than its standard counterpart. 621-100 (11/U type) has 35% less attenuation than standard RG-11/U. AMPHENOL connectors are available for both cables.



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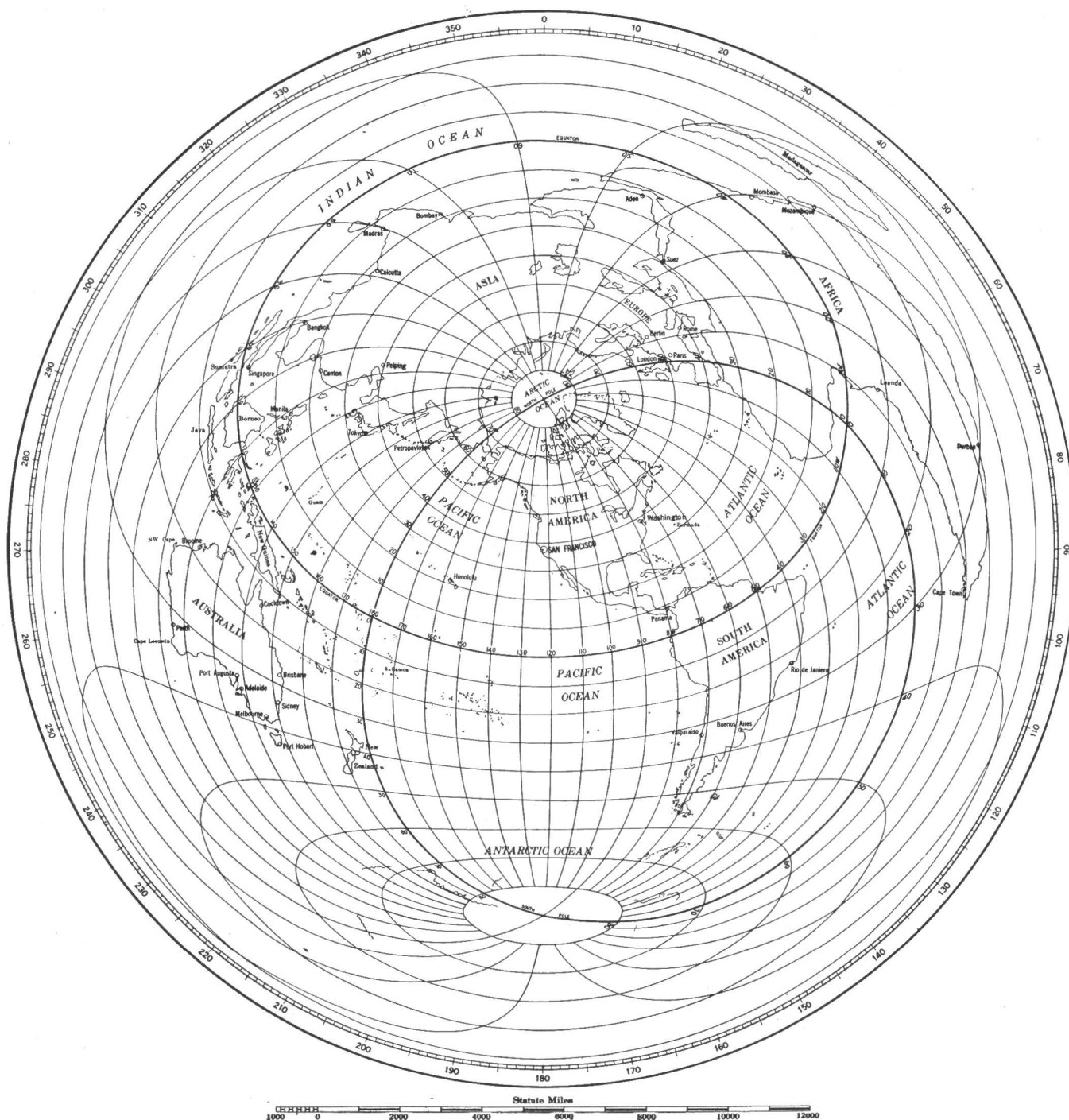


... products for the radio amateur for 25 years





# Great Circle Chart of the World Centered on SAN FRANCISCO, CALIFORNIA



To find the great circle bearing of any point in the world from San Francisco draw a straight line from the center and note the reading in degrees as indicated on the outer scale. The bar scale may be used to determine the approximate distance. This map was prepared by the Hydrographic Office of the U. S. Navy Department.



# GREAT CIRCLE BEARINGS FROM THE UNITED STATES TO VARIOUS WORLD WIDE METROPOLITAN AREAS

	AMSTERDAM, HOLLAND	ANCHORAGE, ALASKA	ASUNCION, PARAGUAY	AUCKLAND, NEW ZEALAND	BOGOTA, COLOMBIA	BOMBAY, INDIA	BERN, SWITZERLAND	BRUSSELS, BELGIUM	BUENOS AIRES, ARGENTINA	CAIRO, EGYPT	CAPETOWN, SOUTH AFRICA	CARACAS, VENEZUELA	COPENHAGEN, DENMARK	GUATEMALA CITY, GUATEMALA	HAVANA, CUBA	HELSINKI, FINLAND	HONOLULU, T. H.	JOHANNESBURG, SOUTH AFRICA	LA PAZ, BOLIVIA	LIMA, PERU	LONDON, ENGLAND	MADRID, SPAIN	MANILA, PHILIPPINE ISLANDS	MEXICO CITY, MEXICO	MONTEVIDEO, URUGUAY	MONTREAL, CANADA	OSLO, NORWAY	PARIS, FRANCE	PRAGUE, CZECHOSLOVAKIA	QUITO, ECUADOR	RIO DE JANEIRO, BRAZIL	ROME, ITALY	SAN JOSE, COSTA RICA	SANTIAGO, CHILE	SHANGHAI, CHINA	SINGAPORE, MALAYA	STOCKHOLM, SWEDEN	SYDNEY, AUSTRALIA	TOKYO, JAPAN
ATLANTA, GA.	43	325	153	242	160	26	48	45	158	51	114	141	38	198	170	30	280	102	160	170	45	58	329	227	156	32	34	47	42	170	139	51	179	168	336	346	33	254	324
BIRMINGHAM, ALA.	42	325	151	241	155	23	47	44	156	50	113	137	37	191	158	29	279	101	157	167	44	57	327	221	154	36	33	47	42	165	137	50	173	166	334	342	32	253	323
BISMARCK, N. D.	42	315	141	240	143	7	45	43	146	40	97	131	35	162	142	27	261	81	146	154	45	56	317	177	145	84	33	46	39	151	129	46	153	155	325	328	30	256	314
BOSTON, MASS.	51	321	167	253	186	36	56	53	169	60	117	172	45	217	210	36	284	105	177	187	53	68	346	235	168	331	40	56	50	191	153	59	205	181	349	7	39	270	335
BUFFALO, N. Y.	49	320	160	250	172	29	53	51	163	55	112	159	42	203	189	34	279	99	168	178	51	65	338	222	161	54	38	53	47	179	146	56	189	173	342	356	37	266	329
CHARLESTON, W. VA.	46	322	156	246	167	28	50	47	160	53	113	151	40	201	183	32	279	101	164	174	48	61	334	224	159	37	36	50	45	175	143	53	185	170	339	351	35	259	327
CHEYENNE, WYO.	38	322	138	236	135	3	41	40	143	37	100	122	32	151	127	24	263	84	141	148	41	52	312	166	142	69	30	42	36	143	126	42	144	152	322	321	27	250	312
CHICAGO, ILL.	45	320	152	245	158	21	49	47	156	49	108	144	39	186	165	31	274	95	158	167	48	60	328	207	154	66	36	50	44	167	138	51	173	166	335	343	34	260	323
CLEVELAND, OHIO	47	320	157	247	167	27	52	49	161	53	111	153	41	198	182	33	278	99	165	174	50	63	334	219	159	53	37	52	46	175	143	54	184	171	340	352	36	263	327
COLUMBIA, S. C.	44	324	156	243	166	29	49	46	161	53	115	148	39	206	186	31	281	103	164	175	46	59	333	232	159	24	35	48	44	175	142	52	187	171	339	352	34	255	327
DALLAS, TEXAS	39	326	142	237	138	12	43	41	148	44	110	122	34	161	123	26	274	97	146	154	42	53	317	189	147	48	31	43	38	149	130	45	150	157	326	326	29	249	317
DENVER, COLORADO	38	323	137	235	133	2	41	39	143	37	101	120	32	149	124	24	264	85	141	147	41	52	312	164	142	66	29	42	35	142	125	42	142	152	321	320	27	249	312
DES MOINES, IOWA	43	320	146	242	149	15	47	44	151	45	105	135	37	173	149	28	270	90	152	160	46	58	323	194	150	68	34	47	41	158	134	48	162	161	330	335	32	256	319
DETROIT, MICH.	47	320	156	247	166	25	51	49	160	52	110	151	41	195	178	32	277	97	163	173	50	63	333	216	159	62	37	52	46	173	142	54	182	169	339	350	35	263	326
EL PASO, TEXAS	36	329	135	233	125	1	39	37	142	37	108	111	30	136	106	22	270	94	137	142	38	49	308	150	140	52	27	40	34	135	124	41	131	149	319	313	25	245	312
HELENA, MONTANA	36	318	133	233	130	355	39	38	138	31	89	119	30	144	124	22	252	71	136	142	39	49	308	154	137	78	28	40	33	138	121	39	138	147	317	316	25	249	307
HOUSTON, TEXAS	39	328	143	237	137	15	43	41	149	45	113	120	34	162	116	26	277	100	147	154	41	53	317	199	147	41	30	43	38	149	130	46	150	158	327	326	29	247	318
INDIANAPOLIS, IND.	45	321	153	244	160	23	49	47	157	50	110	144	39	190	168	31	276	97	160	169	47	60	329	212	155	54	35	49	43	168	139	52	176	167	336	345	34	259	324
JACKSONVILLE, FLA.	42	326	155	242	163	30	48	44	160	53	117	142	37	209	185	30	283	105	163	173	44	57	331	239	158	20	33	47	42	174	141	51	187	170	338	350	33	251	326
KANSAS CITY, MO.	42	322	145	240	146	14	45	43	151	45	107	132	36	171	143	28	271	93	151	159	44	56	321	193	149	61	33	46	40	156	133	47	159	160	329	333	31	254	319
LITTLE ROCK, ARK.	41	325	146	240	147	17	45	43	152	47	111	130	36	175	141	28	275	98	152	160	43	56	322	203	150	47	32	45	40	157	134	48	161	161	330	334	31	252	320
LOS ANGELES, CALIF.	31	333	127	228	116	347	34	33	135	28	102	104	26	121	100	18	260	84	128	132	34	44	300	126	134	58	24	35	28	124	117	34	119	141	312	303	21	241	306
LOUISVILLE, KY.	44	322	153	244	160	23	49	46	157	50	111	144	39	191	168	30	277	98	160	169	47	60	329	215	156	47	35	49	43	168	139	51	176	167	336	345	33	257	324
MIAMI, FLORIDA	41	328	155	240	163	33	47	43	160	54	118	138	37	223	217	30	285	108	163	175	43	56	331	254	158	13	33	46	42	176	140	50	194	171	339	351	32	247	327
MILWAUKEE, WIS.	45	319	152	245	158	20	50	47	156	49	107	145	39	185	165	31	273	94	158	167	48	61	328	205	154	72	36	50	44	166	138	52	173	165	335	343	34	261	323
MINNEAPOLIS, MINN.	44	317	147	243	152	15	48	46	152	46	103	139	38	175	154	29	270	90	153	161	47	59	324	193	150	81	35	49	42	160	134	49	164	161	331	337	33	259	319
NASHVILLE, TENN.	43	323	151	242	157	23	48	45	156	50	112	140	38	190	162	30	277	99	158	167	46	58	328	216	155	43	34	48	42	166	138	50	174	166	335	343	33	255	324
NEW ORLEANS, LA.	40	327	147	239	146	21	45	42	153	48	114	127	35	182	133	28	279	102	152	161	43	55	322	220	151	35	32	45	40	158	135	48	163	162	331	334	30	249	321
NEW YORK, N. Y.	49	321	164	251	180	34	54	51	167	58	116	166	43	214	204	35	283	104	173	184	51	66	343	233	165	4	39	54	48	187	150	57	199	177	346	3	38	266	333
NORFOLK, VA.	46	323	161	247	176	33	51	48	165	56	116	160	41	213	203	33	283	104	170	181	48	62	339	235	163	12	36	51	46	184	147	55	197	175	344	0	36	260	331
PHILADELPHIA, PA.	48	322	163	249	178	33	53	50	166	57	115	164	42	212	202	34	282	103	172	182	50	65	341	232	164	11	38	53	48	185	149	56	197	176	345	2	37	264	332
PHOENIX, ARIZONA	34	330	131	231	121	354	37	35	138	33	105	108	28	129	104	20	265	89	133	138	36	47	304	137	137	56	26	38	31	130	121	38	126	146	316	308	23	243	309
PITTSBURGH, PA.	47	321	158	247	170	29	52	49	162	54	113	155	41	203	187	33	279	100	167	176	49	63	336	224	160	41	37	52	46	178	145	55	188	172	341	354	36	262	329
ST. LOUIS, MO.	43	322	149	242	153	19	47	45	154	48	109	137	37	181	156	29	274	96	155	164	46	58	325	204	152	55	34	47	42	162	136	49	167	163	332	339	32	256	321
SALT LAKE CITY, UTAH	35	325	132	232	127	355	38	36	139	32	96	114	29	138	116	21	258	79	135	141	38	48	307	149	136	67	27	39	32	135	121	38	134	146	317	313	24	247	308
SAN FRANCISCO, CALIF.	30	333	125	226	115	343	32	31	132	24	95	104	24	121	101	16	252	74	126	130	33	42	298	126	131	62	22	33	26	123	115	32	119	139	310	301	19	240	303
SEATTLE, WASHINGTON	31	321	125	227	120	345	33	32	131	23	79	110	25	131	113	17	240	58	128	133	34	43	300	138	130	75	24	35	27	128	113	32	127	139	309	306	20	243	301
WASHINGTON, D. C.	47	322	161	248	175	32	52	49	164	56	115	160	41	210	198	33	282	103	170	180	49	63	339	231	163	20	37	52	47	182	147	55	194						



[illegible]

To find the great circle bearing to any point in the world from the center of the United States, draw a straight line from the star and note the reading in degrees on the outer scale. The bar scale at the bottom of the chart can be used to determine the distance in statute miles. For bearings to the nearest degree reference is invited to the table on the opposite Page. The outlines of this chart were prepared by the U.S. Coast and Geodetic Survey.



# GREAT CIRCLE BEARINGS

FROM THE CENTER OF THE

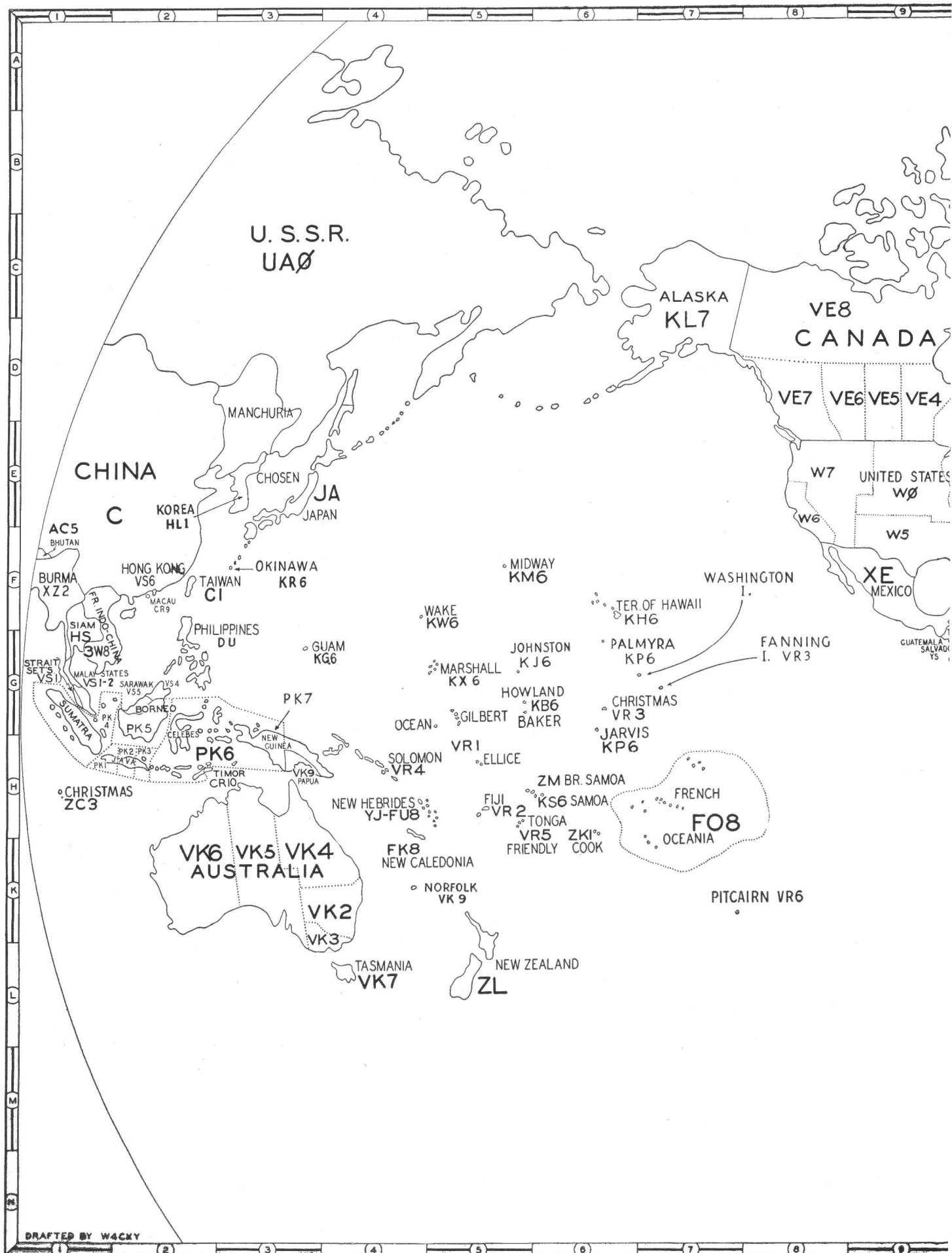
## UNITED STATES

The table below shows the great circle bearing in degrees from the exact center of the United States to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is given. These bearings were compiled from information supplied by the U. S. Coast and Geodetic Survey.

Prefix	Country	Bearing	Prefix	Country	Bearing	Prefix	Country	Bearing
AC3	SIKKIM	352	KL7	ALASKA, Anchorage	322	VK3	Melbourne	250
AC4	TIBET, Lhasa	350		Fairbanks	329	VK4	Brisbane	257
AG2	TRIESTE	41	KM6	MIDWAY ISLAND	288	VK5	Darwin	287
AP	PAKISTAN, Karachi	13	KP4	PUERTO RICO	117	VK6	Perth	274
AR8	LEBANON, Beyrouth	36	KP6	PALMYRA ISLAND	256	VK7	TASMANIA, Hobart	243
Q	CHINA, Chungking	335	KR6	OKINAWA ISLAND	318	VK9	NORFOLK ISLAND	248
	Pekin	333	KS4	SWAN ISLAND	144		PAPUA TERRITORY, Port Moresby	277
	Shanghai	325	KS6	SAMOA	248	VO	NEWFOUNDLAND, St. John's	59
CE	CHILE, Santiago	156	KV4	VIRGIN ISLANDS	115	VPI	BRITISH HONDURAS	152
CM	CUBA, Havana	135	KW6	WAKE ISLAND	287	VP2	LEEWARD and WINDWARD ISLANDS	112
CN8	FRENCH MOROCCO, Casablanca	62	KX6	MARSHALL ISLANDS	276	VP3	BRITISH GUIANA, Georgetown	120
CP	BOLIVIA, La Paz	146	KZ5	CANAL ZONE	145	VP4	TRINIDAD	120
CR4	CAPE VERDE ISLANDS	87	LA	NORWAY, Oslo	29	VP5	JAMAICA	127
CR5	PORTUGUESE GUINEA	84	LI	LIBYA, Tripoli	51	VP6	BARBADOS ISLANDS	112
CR6	ANGOLA, Nova Lisboa	83	LU	ARGENTINA, Buenos Aires	147	VP7	BAHAMAS ISLANDS	121
CR7	MOZAMBIQUE, Lourenco Marques	85	LX	LUXEMBOURG	42	VP8	FALKLAND ISLANDS	156
	Mozambique	65	LZ	BULGARIA, Sofia	38		South Georgia Island	147
CR8	GOA	7	MB9	AUSTRIA, Vienna	38		South Orkney Islands	155
CR9	MACAU	327	MD1	CIRENAICA	46	VP9	BERMUDA	94
CR10	TIMOR ISLAND	295	MD2	TRIPOLITANIA	51	VQ1	ZANZIBAR	57
CT1	PORTUGAL, Lisbon	59	MD3	ERITREA, Asmara	44	VQ2	NORTHERN RHODESIA, Lusaka	77
CT2	AZORES ISLANDS	67	MD4	BRITISH SOMALILAND	40	VQ3	TANGANYIKA, Dar-Es-Salaam	59
CT3	MADERIA ISLANDS	68	MD5	SUEZ CANAL ZONE	40	VQ4	KENYA, Nairobi	56
CX	URUGUAY, Montevideo	145	MD6	IRAQ, Baghdad	30	VQ5	UGANDA	59
DL	GERMANY, Berlin	37	MD7	CYPRUS	37	VQ6	BRITISH SOMALILAND	40
DU	PHILIPPINE ISLANDS, Manila	316	MF2	TRIESTE (British)	41	VQ8	CHAGOS ISLANDS	14
EA	SPAIN, Madrid	54	MI3	ERITREA, Asmara	44		Mauritius	51
EA6	BALEARIC ISLANDS	52	MP4	BAHRAIN ISLANDS and OMAN	28	VQ9	SEYCHELLES	38
EA8	CANARY ISLANDS	71	OA	PERU, Lima	153	VR1	GILBERT ISLANDS	267
EA9	SPANISH MOROCCO	59	OH	FINLAND, Helsinki	25	VR2	FIJI ISLANDS	251
EI	IRELAND, Dublin	43	OE	AUSTRIA, Vienna	38	VR3	FANNING ISLAND	252
EK1	TANGIER ZONE	60	OK	CZECHOSLOVAKIA, Prague	38	VR4	SOLOMON ISLANDS	270
EL	LIBERIA, Monrovia	86	ON	BELGIUM, Brussels	41	VR5	TONGA ISLANDS	244
EP	IRAN, Tehran	23	OQ5	BELGIAN CONGO, Elisabethville	74	VR6	PITCAIRN ISLAND	208
ET	ETHIOPIA, Addis Ababa	48		Leopoldville	76	VS	MALAYA, Singapore	326
F	FRANCE, Paris	44		Stanleyville	65	VS4	BRITISH NORTH BORNEO	314
FA	ALGERIA, Algiers	54	OX	GREENLAND, Godthaab	34	VS5	BRUNEI and SARAWAK	316
FBB	MADAGASCAR, Antsirana	53	OY	FAEROES ISLANDS	34	VS6	HONG KONG	326
	Tananarive	63	OZ	DENMARK, Copenhagen	34	VST	CEYLON	1
FC	CORSICA	46	PA	NETHERLANDS, Amsterdam	40	VSS9	ADEN, Aden	39
FD8	TOGOLAND	77	PK	JAVA, Batavia	317	VU	INDIA, Bombay	8
FEB	FRENCH CAMEROONS	72	PK4	SUMATRA	328		Calcutta	351
FF6	FRENCH WEST AFRICA, Dakar	84	PK5	BORNEO	314		Delhi	3
FG6	GUADELOUPE	114	PK6	CELEBES ISLAND	305	VU4	LACCADIVE ISLANDS	9
FIB	FRENCH INDO CHINA, Saigon	328	PK7	NETHERLAND NEW GUINEA	290	VU5	ANDAMAN ISLANDS	345
FK8	NEW CALEDONIA, Noumea	254	PX	ANDORRA	50	XE	MEXICO, Mexico City	178
FL8	FRENCH SOMALILAND, Djibouti	42	PY	BRAZIL, Natal	112	XZ	BURMA, Rangoon	342
FMS	MARTINIQUE	117		Rio de Janeiro	129	YA	AFGHANISTAN, Kandahar	13
F08	FRENCH OCEANIA, Tahiti	229	PZ	SURINAM, (Netherland Guiana)	121	YI	IRAQ, Baghdad	30
FPS	MIQUELON and ST. PIERRE IS.	64	SM	SWEDEN, Stockholm	29	YJ	NEW HEBRIDES	260
FQ8	FRENCH EQUATORIAL AFRICA	65	SP	POLAND, Warsaw	33	YK	SYRIA	34
FR8	REUNION ISLAND	55	ST	ANGLO-EGYPTIAN SUDAN, Khartoum	49	YN	NICARAGUA	150
FT4	TUNISIA, Tunis	50	SU	EGYPT, Cairo	41	YO	ROMANIA, Bucharest	36
FU8	NEW HEBRIDES	259	SV	GREECE, Athens	41	YS	SALVADOR, San Salvador	156
FY8	FRENCH GUIANA, Cayenne	117	SV5	DODECANESE ISLANDS	40	YT	YUGOSLAVIA, Belgrade	39
G	ENGLAND, London	43	TA	TURKEY, Ankara	35	YV	VENEZUELA, Caracas	126
GC	CHANNEL ISLANDS	45	TF	ICELAND, Reykjavik	35	ZA	ALBANIA, Tirana	41
GD	ISLE OF MAN	41	TG	GUATEMALA, Guatemala City	161	ZB1	MALTA	48
GI	NORTHERN IRELAND, Belfast	42	TI	COSTA RICA	150	ZB2	GIBRALTAR	58
GM	SCOTLAND, Glasgow	40	TR	LIBYA, Tripoli	51	ZC1	TRANSJORDAN	36
GW	WALES	43	TT	TANNU TUVA, Kyzyl Khoto	351	ZC2	COCOS ISLANDS	327
HA	HUNGARY, Budapest	37	U	SOVIET UNION, Moscow	23	ZC3	CHRISTMAS ISLAND	315
HB	SWITZERLAND, Bern	43	UB5	UKRAINE	30	ZC4	CYPRUS	37
HC	ECUADOR, Quito	148	UC5	WHITE RUSSIA	25	ZD1	SIERRA LEONE, Freetown	81
HCB	GALAPAGOS ISLANDS	167	UD6	AZERBAIJAN	23	ZD2	NIGERIA, Lagos	76
HE1	LEICHTENSTEIN	43	UF6	GEORGIA	28	ZD3	GAMBIA	84
HH	HAITI, Port-au-Prince	124	UG6	ARMENIA	26	ZD4	GOLD COAST, Accra	80
HI	DOMINICAN REPUBLIC	122	UH8	TURKOMAN	19	ZD6	NYASALAND	69
HK	COLOMBIA, Bogota	140	UI8	UZBEK	12	ZD7	ST. HELENA	100
H11	KOREA, Seoul	324	UJ8	TADZHIK	7	ZD8	ASENCION ISLAND	99
HP	PANAMA	145	UL7	KAZAKH	10	ZD9	TRISTAN da CUNHA	122
HR	HONDURAS	152	UM8	KIRGHIZ	5	ZE	SOUTHERN RHODESIA, Salisbury	77
HS	SIAM, Bangkok	336	UN1	KARELO-FINNISH REPUBLIC	20	ZK1	COOK ISLANDS	234
HV	VATICAN CITY	45	UO5	MOLDAVIA	32	ZK2	NIEUE	242
HZ	SAUDI ARABIA	34	UP	LITHUANIA	30	ZL1	NEW ZEALAND, Auckland	238
I	ITALY, Rome	45	UQ	LATVIA	29	ZL2	Wellington	234
IS	SARDINIA	48	UR	ESTONIA	27	ZL3	Christchurch	233
JA	JAPAN, Tokyo	315	VE1	CANADA, Halifax	68	ZL4	Dunedin	231
KB6	BAKER ISLAND	262	VE2	Montreal	64	ZM6	SAMOA (British)	248
KG6	CAROLINE ISLANDS	260	VE3	Toronto	77	ZP	PARAGUAY, Asuncion	141
KG4	QUANTANAMO BAY, Cuba	126	VE4	Winnipeg	10	ZS	UNION OF SOUTH AFRICA, Capetown	104
KG6	GUAM	297	VE5	Saskatoon	339		Durban	91
KG61	IWO JIMA ISLAND	317	VE6	Edmonton	330		Johannesburg	89
KG6S	SAIPAN ISLAND	297	VE7	Vancouver	308	ZS3	SOUTH WEST AFRICA, Windhoek	92
KG6T	TINIAN ISLAND	297	VE8	Fort Nelson	333	ZS7	SWAZILAND	87
KH6	HAWAIIAN ISLANDS, Honolulu	267	VK1	HEARD ISLAND	163	ZS8	BASUTOLAND	93
KJ6	JOHNSTON ISLAND	270	VK2	AUSTRALIA, Sydney	252	ZS9	BECHUANALAND	87



# WORLD MAP SHOWING





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# GREAT CIRCLE BEARINGS IN THE UNITED STATES

	ATLANTA, GA.	BIRMINGHAM, ALA.	BISMARCK, N. D.	BOSTON, MASS.	BUFFALO, N. Y.	CHARLESTON, W. VA.	CHEYENNE, WYO.	CHICAGO, ILL.	CLEVELAND, OHIO	COLUMBIA, S. C.	DALLAS, TEXAS	DENVER, COLORADO	DES MOINES, IOWA	DETROIT, MICH.	EL PASO, TEXAS	HELENA, MONTANA	HOUSTON, TEXAS	INDIANAPOLIS, IND.	JACKSONVILLE, FLA.	KANSAS CITY, MO.	LITTLE ROCK, ARK.	LOS ANGELES, CALIF.	LOUISVILLE, KY.	MIAMI, FLORIDA	MILWAUKEE, WIS.	MINNEAPOLIS, MINN.	NASHVILLE, TENN.	NEW ORLEANS, LA.	NEW YORK, N. Y.	NORFOLK, VA.	PHILADELPHIA, PA.	PHOENIX, ARIZONA	PITTSBURGH, PA.	ST. LOUIS, MO.	SALT LAKE CITY, UTAH	SAN FRANCISCO, CALIF.	SEATTLE, WASHINGTON	WASHINGTON, D. C.	WILMINGTON, N. C.
ATLANTA, GA.		264	322	47	24	25	301	343	15	86	269	297	320	7	271	310	251	347	145	306	281	281	347	154	345	331	321	234	48	64	48	278	27	318	296	289	308	48	84
BIRMINGHAM, ALA.	82		326	50	31	40	304	356	26	84	268	299	328	17	270	312	246	5	125	314	287	281	10	142	355	338	0	219	52	67	53	278	37	333	298	290	309	53	83
BISMARCK, N. D.	132	137		92	97	115	209	114	105	124	167	205	133	104	198	273	165	119	132	148	150	233	123	135	109	108	131	151	99	111	102	217	106	134	237	249	282	107	119
BOSTON, MASS.	236	241	291		277	247	278	273	267	226	254	275	275	274	262	293	246	263	220	268	253	273	256	207	278	286	249	237	235	219	233	268	258	262	280	280	295	236	217
BUFFALO, N. Y.	208	217	291	92		206	273	264	237	192	241	269	268	261	252	290	231	243	191	258	237	267	231	184	274	286	225	219	118	160	134	261	199	248	276	276	293	159	174
CHARLESTON, W. VA.	208	223	307	61	24		287	309	359	174	251	282	293	345	260	300	238	293	180	279	251	274	270	174	316	311	245	223	66	108	71	269	31	275	286	282	301	80	143
CHEYENNE, WYO.	108	112	26	76	76	91		81	81	103	140	187	83	79	189	319	143	90	113	101	119	241	95	119	76	62	104	128	81	92	83	219	84	98	268	262	303	87	100
CHICAGO, ILL.	161	175	302	82	78	125	272		93	144	221	266	268	80	242	293	210	151	155	245	208	262	157	156	350	308	173	190	91	116	97	254	101	212	274	272	295	106	131
CLEVELAND, OHIO	197	209	297	80	55	179	277	277		176	240	272	275	310	252	293	228	245	180	261	235	268	226	175	290	296	219	214	95	136	105	262	127	250	278	277	296	124	156
COLUMBIA, S. C.	268	267	317	41	10	354	299	329	356		270	295	311	350	271	308	256	326	189	300	279	282	320	174	331	323	297	246	39	53	37	279	7	305	295	290	307	33	85
DALLAS, TEXAS	81	82	349	57	49	61	325	36	50	80		319	15	45	266	325	157	47	97	15	61	280	55	112	32	11	65	115	60	71	61	277	55	40	308	291	315	63	80
DENVER, COLORADO	103	107	22	73	72	87	6	75	77	99	134		74	74	189	325	138	84	109	91	112	246	90	116	70	55	98	124	78	88	80	224	80	91	283	267	308	83	96
DES MOINES, IOWA	134	144	318	80	78	105	271	84	87	123	197	262		81	231	297	187	105	135	197	171	257	116	141	69	5	133	165	87	104	91	247	92	137	273	270	296	97	115
DETROIT, MICH.	188	200	295	86	79	164	273	263	129	168	233	268	268		248	291	222	224	174	254	227	265	208	171	282	292	206	207	100	133	109	258	128	238	275	274	294	124	151
EL PASO, TEXAS	77	78	14	58	54	64	8	50	56	76	79	8	42	53		345	98	57	86	48	71	285	62	97	46	33	68	92	61	69	62	290	59	57	335	298	327	64	75
HELENA, MONTANA	112	116	85	84	88	100	133	97	93	108	134	141	105	92	162		136	101	115	115	122	203	105	119	94	91	111	127	89	98	92	180	94	109	179	224	283	95	104
HOUSTON, TEXAS	64	60	348	50	40	49	329	25	39	67	338	325	6	34	285	327		34	84	3	26	288	40	103	22	5	46	86	52	60	53	289	45	24	314	297	319	5	68
INDIANAPOLIS, IND.	166	185	308	72	58	110	281	332	62	143	234	276	290	41	250	298	220		157	267	226	267	168	158	338	316	188	199	80	107	85	261	80	251	281	277	298	94	127
JACKSONVILLE, FLA.	327	309	324	33	9	1	308	339	0	8	286	304	323	355	282	314	273	340		314	300	288	338	163	341	332	326	271	29	34	28	287	8	323	303	295	312	23	39
KANSAS CITY, MO.	120	129	332	72	67	90	288	60	73	111	196	278	15	66	236	306	184	82	126		157	262	95	134	50	9	113	157	78	93	81	253	79	97	282	275	302	85	105
LITTLE ROCK, ARK.	97	104	335	59	48	65	307	26	48	92	243	300	352	41	260	315	208	43	114	338		276	55	128	21	356	71	158	62	76	64	271	56	22	297	286	309	67	89
LOS ANGELES, CALIF.	81	82	41	62	61	70	52	62	65	79	88	57	60	62	100	19	96	67	87	67	81		70	94	59	52	76	92	65	71	66	95	67	69	35	319	348	68	78
LOUISVILLE, KY.	166	190	313	66	47	87	287	339	43	137	242	282	301	26	256	302	227	348	156	280	239	271		158	342	322	202	205	71	98	75	266	63	278	285	281	301	82	120
MIAMI, FLORIDA	337	326	329	22	3	355	313	342	356	355	302	310	329	353	291	318	290	342	345	321	315	293	341		342	335	334	298	18	16	15	293	1	330	308	299	315	11	13
MILWAUKEE, WIS.	162	175	297	87	88	132	267	170	107	147	218	261	253	99	239	290	207	157	156	235	204	259	160	157		298	172	188	98	121	103	251	111	203	271	270	293	113	135
MINNEAPOLIS, MINN.	145	154	291	91	96	123	248	125	108	135	193	242	184	105	227	283	186	132	144	189	175	248	137	146	114		148	169	99	116	104	237	110	159	259	261	287	111	127
NASHVILLE, TENN.	140	180	320	59	40	61	295	354	36	114	251	290	318	24	261	307	231	8	142	298	254	275	22	150	353	333		205	63	83	65	271	50	313	291	285	305	68	103
NEW ORLEANS, LA.	50	37	337	46	32	38	318	9	28	60	299	313	347	22	283	321	270	17	86	339	339	288	22	114	7	351	23		46	56	47	287	35	359	308	296	315	47	64
NEW YORK, N. Y.	233	240	296	54	303	251	281	281	280	232	255	278	280	286	262	294	244	269	213	271	253	274	259	202	287	293	251	237		205	229	269	269	266	283	282	297	235	208
NORFOLK, VA.	249	253	306	35	342	291	290	303	319	236	264	286	295	318	268	301	253	294	217	285	267	279	284	198	308	307	269	244	25		16	274	322	284	289	286	302	343	208
PHILADELPHIA, PA.	233	240	298	52	317	255	283	285	289	221	255	279	283	294	263	296	246	273	212	273	255	275	263	199	292	296	252	235	49	197		270	279	269	284	282	298	235	203
PHOENIX, ARIZONA	80	83	29	61	59	69	35	58	62	79	89	40	55	59	108	0	100	64	89	62	80	277	70	97	55	45	74	93	64	72	66		64	66	1	300	334	68	79
PITTSBURGH, PA.	210	221	300	72	18	213	280	286	308	188	246	276	281	310	257	295	235	264	189	268	244	271	246	181	296	299	234	222	85	140	96	265		261	281	279	297	123	165
ST. LOUIS, MO.	134	150	320	70	60	90	287	30	63	119	224	280	319	53	248	303	207	68	137	280	204	267	94	143	20	342	130	179	75	95	79	260	74		284	278	301	84	110
SALT LAKE CITY, UTAH	99	101	50	73	74	86	83	79	78	95	118	98	80	76	152	359	123	84	103	91	104	220	88	109	75	67	95	114	78	86	80	181	80	90		254	315	83	92
SAN FRANCISCO, CALIF.	86	86	54	66	67	75	70	70	70	83	96	75	70	68	109	39	101	73	90	77	88	136	77	96	67	62	81	97	69	76	71	114	71	77	66		1	73	81
SEATTLE, WASHINGTON	103	105	87	81	84	94	111	92	89	100	118	116	97	88	136	96	120	95	105	103	109	165	97	109	90	88	102	114	85	92	87	147	89	100	128	181		90	97
WASHINGTON, D. C.	233	240	302	52	342	263	285	293	307	215	256	281	287	308	263	298	245	280	205	277	257	275	268	192	300	302	254	235	53	163	53	270	305	273	285	283	300		



## STANDARD TIME THROUGHOUT THE WORLD

Compiled by the National Bureau of Standards

Standard time for the world, like longitude, is counted from Greenwich, England, as the prime meridian. Places to the east of Greenwich have faster time than Greenwich, while places to the west have slower time. The world is divided into time zones of approximately 15° for every hour. Since Greenwich is in the 0 zone, the number of any zone, if added or subtracted to the time in Greenwich, will give the corresponding time in that particular zone.

Not all countries follow the International Time Zone System, but some use the time of some principal city as a standard and others have no standard time. The different time zones of the world are numbered east and west of Greenwich. The zone number when added or subtracted, as shown in the following table, from the time of the zone gives the corresponding Greenwich time. Thus zones to the east have faster time than Greenwich and are indicated as minus (—), while those to the west have slower time and are indicated as plus (+).

Country	Zone Number	Country	Zone Number	Country	Zone Number
Admiralty Islands	—10	Ecuador	+5	Norway§	—1
Afghanistan	—4	Egypt†	—2	Nyasaland	—2
Alaska	—8	Eire†	0	Orkney Islands	0
Juneau, Ketchikan, Sitka	+8	Ellice Islands	—12	Pakistan	—5½
Cordova	+9	El Salvador	+6	Palestine†	—2
Central part	+10	England†	0	Panama	+5
West coast, Aleutian Islands	+11	Equatorial Africa, French	—1	Paraguay	+4
Albania†	—1	Eritrea	—3	Peru†	+5
Algeria	—0	Ethiopia	—3	Philippine Islands	—8
Amirante Islands	—4	Falkland Islands†	+4	Poland	—1
Amsterdam Island	—5	Fanning Island	+11	Western part	—1
Andaman Islands	—6½	Faroe Islands	0	Eastern part	—2
Andorra†	0	Finland†	—2	Portugal†	0
Anglo-Egyptian Sudan	—2	France†	0	Puerto Rico	+4
Angola	—1	Gambia	0	Reunion Island	—4
Anguilla Island	+4	Germany†	—1	Rhodesia	—2
Antigua Island	+4	Gibraltar†	0	Northern	—2
Arabia†	—3	Gilbert Islands	—12	Southern	—2
Aden†	—3	Gold Coast†	0	Rio de Oro	+1
Argentina†	+4	Greece†	—2	Rumania	—2
Aru Islands	—9	Scoresby Sound	+2	Samoa Islands	+11
Ascension Island	0	Angmagssalik, Disko Island, Western Coast	+3	San Marino†	—1
Austral (Tubuai) Islands	+10	Interior†	+3	Sarawak	—8
Australia	—8	Grenada Island	+4	Saudi Arabia†	0
Western Australia	—8	Guadeloupe Island	+4	Scotland	0
Northern Territory, South Australia†	—9½	Guam Island	—10	Senegal†	0
New South Wales,† Queensland, Victoria*	—10	Guatemala	+6	Seychelles Islands	—4
Austria†	—1	Guiana, British, Dutch, French	+3½	Siam	—7
Azores Islands†	0	Guinea	0	Sierra Leone	0
Bahama Islands	+5	French, Spanish	+1	Society Islands	+10
Bahrain Islands	—6	Portuguese	+1	Solomon Islands	—11
Baleatic Islands†	+4	Haiti	+5	Somaliland	—3
Barbados Island†	—2	Hawaiian Islands	+10	Southwest Africa	—2
Bechuanaland	0	Hebrides Islands	0	Spain†	0
Belgium†	+4	Honduras	+6	Spitzbergen†	+4
Bermuda Islands†	—5½	Hungary†	—1	St. Croix Island	0
Bhutan	+4	Iceland†	+1	St. Helena Island	+11
Bolivia	—8	India†	—5½	St. Lawrence Island	+4
Borneo†	+2	Indo-China†	—3½	St. Lucia Island	+11
Brazil	+3	Iran	—3	St. Matthew Island	0
Fernando Noronha Island, Isle de	+2	Iraq†	0	St. Miguel Island	+4
Trinidad	+3	Ireland, Northern†	0	St. Pierre Island†	+4
Bahia, Ceara, Esperito Santo, Goyaz, Miranhao, Minas-Geraes, Para, Parana, Pernambuco, Piauh, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Santa Catherina, Sao Paulo	+4	Isle of Man	+5	St. Thomas Island	+4
Amazonas, Matto Grosso	+4	Isle of Pines	—1	St. Vincent Island	+4
Acre Territory	+5	Italy†	+5	Sudan (French West Africa)	0
British Honduras†	+6	Jamaica	+5	Eastern part	+1
Bulgaria	—3	Japan†	—9	Western part	—7
Burma	—6½	Java	—8	Sumatra Island	—1
Cameroons	—1	Kenya	—3	Sweden	—1
Canada	+3½	Kodiak Island	+10	Switzerland†	—1
Belle Isle, Labrador,† Newfoundland†	+3½	Korea	—9	Syria†	—2
Anticosti Island, Cape Breton Island, Magdalen Island, New Brunswick,† Nova Scotia,† Prince Edward Island, Quebec (east of 68° W.),† Sable Island, Melville Peninsula (east), Ontario (east of 90° W.),† Quebec (west of 68 W.),† Southampton Island	+4	Labrador	+3½	Tanganyika	—3
Manitoba, Ontario (west of 90° W.), Melville Peninsula (west), Northwest Territories (east)	+5	Laccadive Islands	—5½	Tangier	0
Alberta, Saskatchewan, Northwest Territories (middle)	+6	Latvia*	—2	Tasmania Island†	—10
British Columbia, Northwest Territories (west)	+7	Liberia	—1	Timor Island	—9
Yukon	+8	Libya*	—1	Tobago Island	+4
Arctic Islands†	+1	Liechtenstein	—1	Togoland	0
Canary Islands†	+2	Lithuania*	—2	Tonga (Friendly) Islands	+4
Cape Verde Islands	—10	Lord Howe Island	—10½	Transjordan*	—1
Caroline Islands	—5½	Luxembourg*	0	Trinidad Island	—1
Ceylon Island†	—5	Madagascar Island	—3	Tunisia	—2
Chagos Archipelago†	+4	Madeira Islands	0	Turkey†	+5
Chile†	—5	Malay States	—7½	Turks Island	—3
China	—6	Maldives Islands	—1	Uganda	—2
Western part	—5	Malta Island	—12	Union of South Africa†	+5
Mid-Western part	—6	Marshall Islands	+4	United States of America†	+6
Mid-Eastern part, Hainan, Palekoi, Hongkong, Macao	—7	Martinique Island	+4	Eastern	+6
Eastern part	—8	Mauritius Island	+4	Central	+7
Christmas Island	—7	Mexico*	+6	Mountain	+8
Colombia	+5	Aguascalientes, Campeche, Chiapas, Chihuahua, Coahuila, Durango, Guanajuato, Guerrero, Jalisco, Mexico, Michoacan, Morelos, Nuevo Leon, Oaxaca, Puebla, Queretaro, Quintana Roo, San Luis Potosi, Tabasco, Tamaulipas, Tlaxcala, Yucatan	+6	Pacific	+8
Congo	—1	Baja California (south of 28° N.), Nayarit, Sinaloa, Sonora	+7	Alaska	+10
Western part	—2	Baja California (north of 28° N.)	+8	Uruguay†	+3
Eastern part	—2	Midway Island	+11	U. S. S. R.†	—2
Cook Islands	+6	Monaco§	0	Estonia, Karelo-Finnish, Latvia, Lithuania, Moldavia, Russia, Ukraine, White Russia	—3
Costa Rica	+5	Morocco§	—2	Armenia, Azerbaijan, Georgia	—4
Cuba†	+4½	Mozambique	—5½	Kazak, Tadzhik, Turkmen, Uzbek	—5
Curacao Island	—2	Nepal	—11	Kirghiz, W. Siberian Region	—6
Cyprus Island	—1	Netherlands	—11	Approximately 82½° to 97½°	—7
Czechoslovakia	0	New Caledonia Islands	+3½	Buryat-Mongol, E. Siberian Region	—8
Dahomey	—1	New Guinea	—9	Approximately 112½° to 127½°	—9
Denmark†	—2	Western part (Dutch)	—10	Kuril Islands, Sakhalin	—10
Dodecanese Islands	—1	Eastern part (British)	—11	Approximately 142½° to 157½°	—11
Dominican Republic†	+5	New Hebrides Islands	—12	Approximately 157½° to 172½°	—12
		New Zealand§	+6	Approximately 172½° to coast	—12
		Nicaragua	—1	Vatican City	—1
		Nigeria	—11½	Venezuela	+4½
		Norfolk Island	0	Virgin Islands	+4
		Northern Ireland§	0	Wake Island	—12
				Wales	0
				Wrangell Island	—12
				Yap Island	—10
				Yugoslavia	—1
				Zanzibar Island	—3

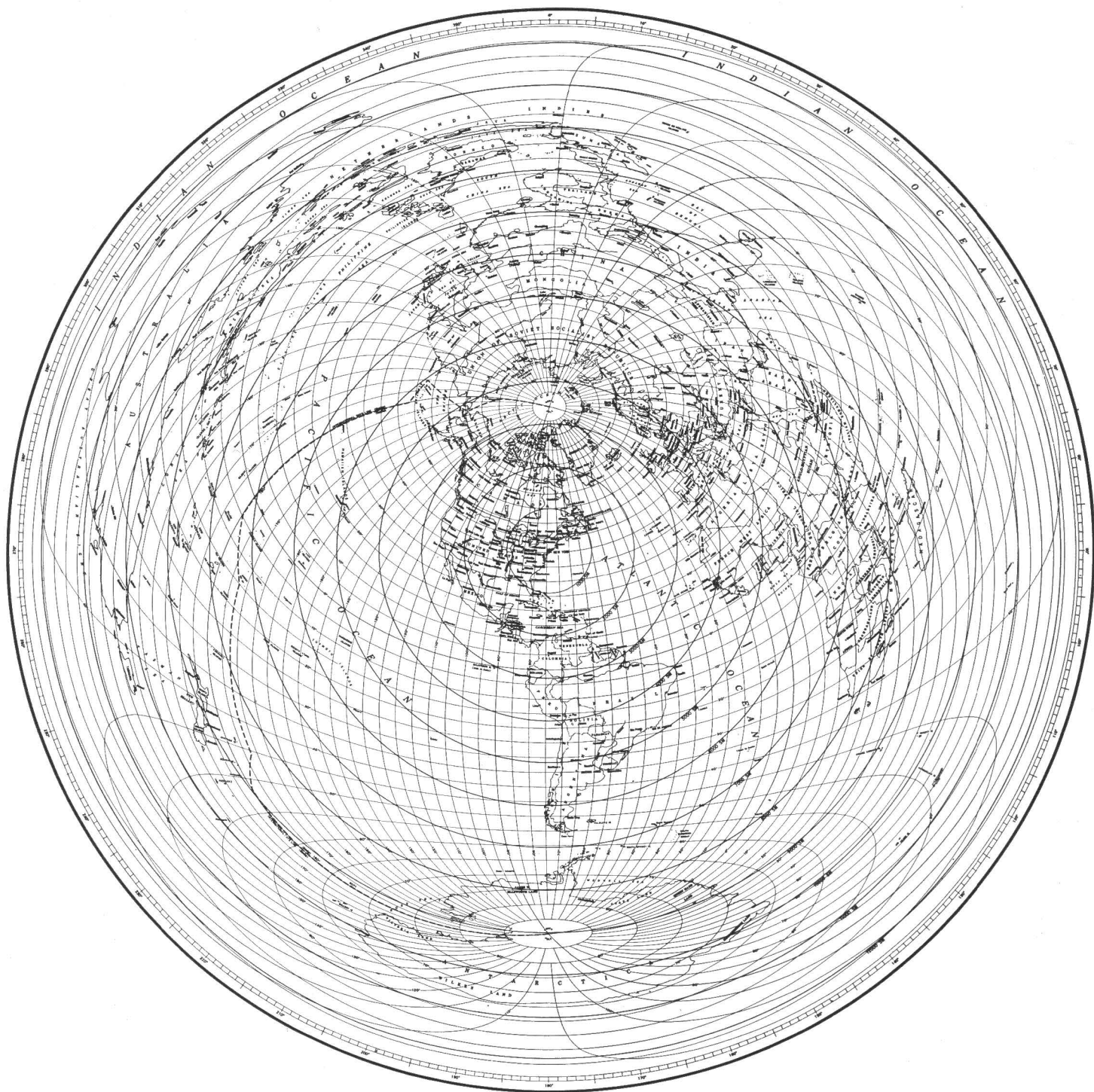
See time Zone Chart of the World No. 5192, published by Hydrographic Office, Navy.

†Fast time in use during part of the year.

‡No definite standard time used.  
§1 hour or 2 hours fast, fixed annually.



# Great Circle Chart of the World Centered on NEW YORK, N. Y.



To find the great circle bearing of any point in the world from New York, N. Y., draw a straight line from the center and note the reading in degrees on the outer scale. The circles at 1,000 statute mile intervals, permit this chart to be used as a distance table from New York City to any point in the world. Prepared by the U. S. Coast and Geodetic Survey.



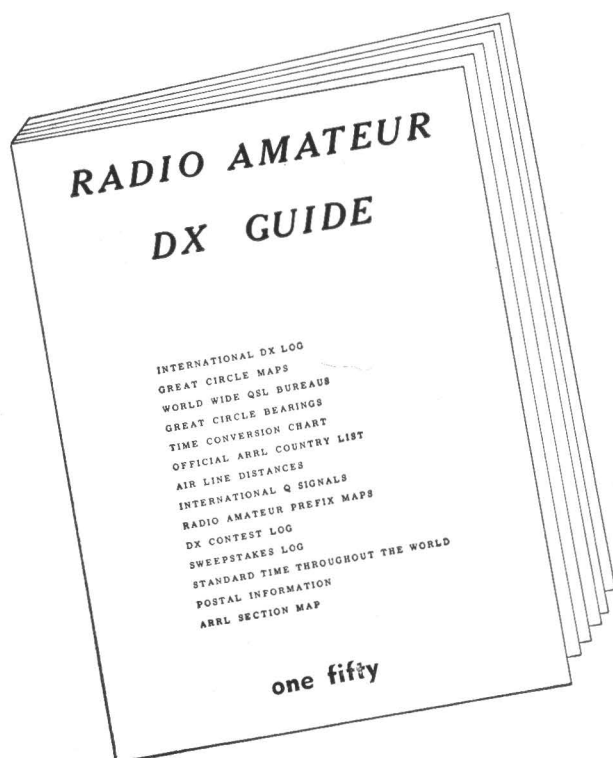
# GREAT CIRCLE BEARINGS

## CENTERED ON NEW YORK, N. Y.

The table below shows the great circle bearing in degrees from New York, N. Y., to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is given. These bearings were compiled from information supplied by the U. S. Coast and Geodetic Survey.

Prefix	Country	Bearing	Prefix	Country	Bearing	Prefix	Country	Bearing
AG3	SIKKIM	17	KL7	ALASKA, Anchorage	321	VK3	Melbourne	262
AG4	TIBET, Lhasa	14		Fairbanks	327	VK4	Brisbane	274
AG2	TRIESTE	53	KM6	MIDWAY ISLAND	301	VK5	Darwin	315
AP	PAKISTAN, Karachi	36	KP4	PUERTO RICO, San Juan	160	VK6	Perth	315
AR8	LEBANON, Beyrouth	52	KP6	PALMYRA ISLAND	271	VK7	TASMANIA, Hobart	252
C	CHINA, Chungking	359	KR6	OKINAWA ISLAND	340	VK9	NORFOLK ISLAND	263
	Pekin	352	KS4	SWAN ISLAND	203		PAPUA TERRITORY, Port Moresby	299
	Shanghai	346	KS6	SAMOA	264	VO	NEWFOUNDLAND, St. John's	60
CE	CHILE, Santiago	177	KV4	VIRGIN ISLANDS	151	VPI	BRITISH HONDURAS	212
CM	CUBA, Havana	204	KW6	WAKE ISLAND	304	VP2	LEEWARD & WINDWARD ISLANDS	151
CN2	TANGIER ZONE	72	KX6	MARSHALL ISLANDS	294	VP3	BRITISH GUIANA, Georgetown	152
CN8	FRENCH MOROCCO, Casablanca	75	KZ5	CANAL ZONE	190	VP4	TRINIDAD	155
CP	BOLIVIA, La Paz	173	LA	NORWAY, Oslo	39	VP5	JAMAICA, Kingston	187
CR4	CAPE VERDE ISLANDS	105	LI	LIBYA, Tripoli	65	VP6	BARBADOS ISLANDS	149
CR5	PORTUGUESE GUINEA	101	LU	ARGENTINA, Buenos Aires	167	VP7	BAHAMAS ISLANDS	186
CR6	ANGOLA, Nova Lisboa	100	LX	LUXEMBOURG	51	VP8	FALKLAND ISLANDS	171
CR7	MOZAMBIQUE, Lourenco Marques	101	LZ	BULGARIA, Sofia	52		South Georgia Island	159
	Mocambique	85	MB9	AUSTRIA, Vienna	49		South Orkney Islands	166
CR8	GOA	35	MD1	CIRENAICA	61	VP9	BERMUDA	134
CR9	MACAU	352	MD2	TRIPOLITANIA	65	VQ1	ZANZIBAR	79
CR10	TIMOR ISLAND	327	MD3	ERITREA, Asmara	63	VQ2	NORTHERN RHODESIA, Lusaka	94
CT1	PORTUGAL, Lisbon	70	MD4	BRITISH SOMALILAND	62	VQ3	TANGANYIKA, Dar-Es-Salaam	80
CT2	AZORES ISLANDS	78	MD5	SUEZ CANAL ZONE	57	VQ4	KENYA, Nairobi	77
CT3	MADERIA ISLANDS	81	MD6	IRAQ, Baghdad	47	VQ5	UGANDA	83
CX	URUGUAY, Montevideo	165	MD7	CYPRUS	53	VQ6	BRITISH SOMALILAND, Berbera	62
DL	GERMANY, Berlin	46	MF2	TRIESTE (British)	53	VQ8	CHAGOS ISLANDS	50
DU	PHILIPPINE ISLANDS, Manila	343	M13	ERITREA, Asmara	63		Mauritius	78
EA	SPAIN, Madrid	66	MP4	BAHRAIN ISLANDS & OMAN	48	VQ9	SEYCHELLES	65
EA6	BALEARIC ISLANDS	64	MI	SAN MARINO	55	VRI	GILBERT ISLANDS	283
EA8	CANARY ISLANDS	86	OA	PERU, Lima	184	VR2	FIJI ISLANDS, Suva	267
EA9	SPANISH MOROCCO	72	OE	AUSTRIA, Vienna	49	VR3	FANNING ISLAND	270
EI	IRELAND, Dublin	50	OH	FINLAND, Helsinki	35	VR4	SOLOMON ISLANDS	290
EK1	TANGIER ZONE	72	OK	CZECHOSLOVAKIA, Prague	48	VR5	TONGA ISLANDS	261
EL	LIBERIA, Monrovia	103	ON	BELGIUM, Brussels	51	VR6	PITCAIRN ISLAND	229
EP	IRAN, Tehran	42	OQ5	BELGIAN CONGO, Elisabethville	91	VS	MALAYA, Singapore	3
ET	ETHIOPIA, Addis Ababa	68		Leopoldville	94	VS4	BRITISH NORTH BORNEO	345
F	FRANCE, Paris	54		Stanleyville	83	VS5	BRUNEI and SARAWAK	348
FA	ALGERIA, Algiers	67	OY	GREENLAND, Godthaab	22	VS6	HONG KONG	351
FBB	MADAGASCAR, Antsirana	77	OZ	FAEROES ISLANDS	38	VST	CEYLON	32
	Tananarive	84	PA	DENMARK, Copenhagen	43	V59	ADEN, Aden	61
FG	CORSICA	58	PJ	NETHERLANDS, Amsterdam	49	VU	INDIA, Bombay	34
FG8	TOGOLAND	93	PK	NETHERLAND WEST INDIES	169		Calcutta	18
FF8	FRENCH CAMEROONS	90	PK4	JAVA, Batavia	358		Delhi	26
FF9	FRENCH WEST AFRICA, Dakar	101	PK5	SUMATRA	5	VU4	LACCADIVE ISLANDS	38
FGB	GUADELOUPE	152	PK6	BORNEO	348	VU5	ANDAMAN ISLANDS	16
FIB	FRENCH INDO CHINA, Saigon	359	PK7	CELEBES ISLAND	336	XE	MEXICO, Mexico City	233
FK8	NEW CALEDONIA, Noumea	271	PK8	NETHERLAND NEW GUINEA	313	XZ	BURMA, Rangoon	11
FKS8	AUSTRIA, Vienna	49	PX	ANDORRA	62	YA	AFGHANISTAN, Kandahar	34
FL8	FRENCH SOMALILAND, Djibouti	63	PY	BRAZIL, Natal	132	YI	IRAQ, Baghdad	47
FN	FRENCH INDIA	18		Rio de Janeiro	150	YJ	NEW HEBRIDES	276
FMS	MARTINIQUE	153	PZ	SURINAM (Netherland Guiana)	151	YK	SYRIA	50
FOS	FRENCH OCEANIA, Tahiti	248	SM	SWEDEN, Stockholm	38	YN	NICARAGUA, Managua	204
FPS	MIQUELON & ST. PIERRE IS.	55	SP	POLAND, Warsaw	44	YO	ROMANIA, Bucharest	49
FQS	FRENCH EQUATORIAL AFRICA	82	ST	ANGLO-EGYPTIAN SUDAN, Khartoum	67	YS	SALVADOR, San Salvador	210
FRS	REUNION ISLAND	81	SU	EGYPT, Cairo	58	YT	YUGOSLAVIA, Belgrade	51
FTA	TUNISIA, Tunis	63	SV	GREECE, Athens	56	YV	VENEZUELA, Caracas	166
FUS	NEW HEBRIDES	276	SV5	DODECANESE ISLANDS	54	ZA	ALBANIA, Tirana	55
FYS	FRENCH GUIANA, Cayenne	146	TA	TURKEY, Ankara	49	ZB1	MALTA	71
G	ENGLAND, London	51	TF	ICELAND, Reykjavik	34	ZB2	GIBRALTAR	61
GC	CHANNEL ISLANDS	53	TG	GUATEMALA, Guatemala City	214	ZC1	TRANSJORDAN	53
GD	ISLE OF MAN	48	TI	COSTA RICA, San Jose	199	ZC2	COCOS ISLANDS	18
GI	NORTHERN IRELAND, Belfast	49	TR	LIBYA, Tripoli	65	ZC3	CHRISTMAS ISLAND	267
QM	SCOTLAND, Glasgow	46	TT	TANNU TUVA, Kyzyl Khoto	7	ZC4	CYPRUS	53
QW	WALES	50	U	SOVIET UNION, Moscow	34	ZD1	SIERRA LEONE, Freetown	103
HA	HUNGARY, Budapest	49	UB5	UKRAINE	43	ZD2	NIGERIA, Lagos	93
HB	SWITZERLAND, Bern	54	UC5	WHITE RUSSIA	39	ZD3	GAMBIA	102
HC	ECUADOR, Quito	187	UD6	AZERBAIJAN	42	ZD4	GOLD COAST, Accra	96
HCB	GALAPAGOS ISLANDS	205	UF6	GEORGIA	41	ZD6	NYASALAND	87
HEI	LEICHTENSTEIN	54	UG6	ARMENIA	43	ZD7	ST. HELENA	116
HG	HAITI, Port-au-Prince	175	UH8	TURKOMAN	33	ZD8	ASENCION ISLAND	116
HI	DOMINICAN REPUBLIC	170	UJ8	UZBEK	29	ZD9	TRISTAN da CUNHA	135
HK	COLOMBIA, Bogota	180	UL7	TADZHIK	28	ZE	SOUTHERN RHODESIA, Salisbury	94
HLI	KOREA, Seoul	343	UM8	KAZAKH	22	ZK1	COOK ISLANDS	252
HP	PANAMA	190	UN1	KIRGHIZ	21	ZK2	NIUE	258
HR	HONDURAS, Tegucigalpa	207	UO5	KARELO-FINNISH REPUBLIC	27	ZL1	NEW ZEALAND, Auckland	251
HS	SIAM, Bangkok	6	UP	LITHUANIA	40	ZL2	Wellington	245
HV	VATICAN CITY	57	UQ	LATVIA	38	ZL3	Christchurch	243
HZ	SAUDI ARABIA	55	UR	ESTONIA	36	ZL4	Dunedin	241
I	ITALY, Rome	57	VE1	CANADA, Halifax	61	ZM6	SAMOA (British)	265
IS	SARDINIA	60	VE2	Montreal	4	ZP	PARAGUAY, Asuncion	164
JA	JAPAN, TOKYO	333	VE3	Toronto	305	ZS	UNION OF SOUTH AFRICA, Capetown	116
KA	JAPAN, Tokyo	333	VE4	Winnipeg	307		Durban	106
KB6	BAKER ISLAND	278	VE5	Saskatoon	308		Johannesburg	104
KCB	CAROLINE ISLANDS	312	VE6	Edmonton	311	ZS3	SOUTH WEST AFRICA, Windhoek	107
KG4	GUANTANAMO BAY, Cuba	181	VE7	Vancouver	302	ZS7	SWAZILAND	102
KGB	GUAM	318	VE8	Fort Nelson	318	ZS8	BASUTOLAND	107
KGB1	IWO JIMA ISLAND	327	VK1	HEARD ISLAND	130	ZS9	BECHUANALAND	103
KGB5	SAIPAN ISLAND	318	VK2	AUSTRALIA, Sydney	266	3A2	MONACO	57
KGB7	TINIAN ISLAND	318				3V8	TUNISIA	63
KH6	HAWAIIAN ISLANDS, Honolulu	283				4X4	ISRAEL	54
KJ6	JOHNSTON ISLAND	286				5A2	LIBYA	65
						9S4	SAARLAND	52





# A HANDY REFERENCE BOOK FOR ALL RADIO AMATEURS

## The RADIO AMATEUR DX GUIDE

fills a definite need for a handy book to have around the ham shack for reference purposes. Printed on a good grade of paper each page is perforated so that it can be easily removed for mounting under glass or on the wall.

### JUST LOOK AT THIS TABLE OF CONTENTS

#### INTERNATIONAL DX LOG

This log lists all countries having licensed radio amateurs by prefix. Ample space is provided to make a permanent record of all DX stations worked; showing the date, call letters, frequency and whether a QSL card has been sent or received. All countries that qualify for DXCC are listed.

#### WORLD MAP SHOWING RADIO AMATEUR PREFIXES

This is an outline map of the world with all radio amateur prefixes. Total size 15 x 10 inches. Excellent for mounting.

#### GREAT CIRCLE MAPS

Three great circle maps are included centered on San Francisco, California; the center of the United States and New York, N. Y.

#### GREAT CIRCLE OUTLINE CHART OF THE UNITED STATES

Published by the U. S. Coast and Geodetic Survey, it is possible to determine the great circle bearing between any two points in the United States, with the proper use of this map.

#### PREFIX MAP OF SOUTH AMERICA

An outline map of South America showing the number or letter designating all sections and countries. Very handy for determining just what part of each country is heard or worked.

#### ARRL SECTION MAP

One copy of this map is included which shows all of the ARRL sections in the United States. These maps can be used for checking off the different sections worked during ARRL contests.

#### GREAT CIRCLE BEARING TABLES

Each of these bearing tables are printed on a separate sheet which is perforated for easy removal of the one nearest to your location. Over 250 bearings are shown on each table and where cities are listed the bearing to the nearest degree is given. Bearings are included on the following points: Atlanta, Ga.; Boston, Mass.; Buffalo, N. Y.; Chicago, Ill.; Center of the USA; Denver, Colo.; Detroit, Mich.; Houston, Tex.; Jacksonville, Fla.; Kansas City, Mo.; Los Angeles, Cal.; Louisville, Ky.; Miami, Fla.; Minneapolis, Minn.; New Orleans, La.; San Francisco, Cal.; Seattle, Wash.

#### GREAT CIRCLE BEARINGS TO WORLD WIDE METROPOLITAN AREAS

Exact bearings are shown in this table to the nearest degree, from 39 cities in the USA to the same number of metropolitan areas throughout the world.

#### GREAT CIRCLE BEARINGS IN THE UNITED STATES

This table includes bearings between 39 large cities in the USA. Accurate to the nearest degree it is a valuable aid for VHF work as well as handling traffic through QRM.

#### TIME CONVERSION TABLE

With this time conversion table you can determine the time in any time zone in the world. Also provision is made to know whether it is today or tomorrow at the place heard or worked.

#### TIME THROUGHOUT THE WORLD

This page includes a list of time zones of countries the world over and an explanation of the International Time Zone System. Compiled by the National Bureau of Standards.

#### AIR LINE DISTANCES IN THE UNITED STATES

Arranged in alphabetical order, this page shows the air line distance between 39 cities in the United States. Compiled from information prepared by the U. S. Coast and Geodetic Survey.

#### INTERNATIONAL Q SIGNALS

All of the "Q" signals have been arranged on one page for instant reference.

#### POSTAL INFORMATION

This page shows the postal rates for QSL cards, first class and air mail letters to all foreign countries. Also the number of international reply coupons for sufficient postage for a return air mail letter is shown for most countries.

#### WORLD WIDE QSL BUREAUS

A complete list of all of the International QSL Bureaus, right up to date, are shown, compiled from the records of the CALLBOOK.

#### ARRL COUNTRIES LIST

Official list of ARRL DX contest and postwar DXCC. Courtesy ARRL.

#### DX CONTEST AND FIELD DAY LOG

This section contains a log that can be used either for a DX contest or the annual ARRL field day.

#### COMPASS ROSE

How often have you wanted a compass for that rotary beam indicator? Two compass roses are provided. One with white background and no printing on the reverse side of the sheet. The other has a black background. Both are graduated for 360 degrees.

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